

Open Source FEA using adapy

This report describes the main verification work of the simulation results produced by the Open Source Finite Element (FE) solvers Code Aster and Calculix.

The motivation behind producing this report is to increase confidence in the conversion of FEM models in *adapy* and also the results from the various FEA solvers.

Introduction

The results from *Code Aster* and *Calculix* and tools will be compared with proprietary FEA solvers such as;

- Abaqus
- Sestra (part of DNV's Sesam suite)

The simulations are pre- and post processed using *adapy* and this report is automatically generated using *paradoc* as part of a ci/cd pipeline within the *adapy* repositories.

For each new addition of code affecting the handling of FEM in *adapy* a new set of analyses is performed, whereas the results are gathered in this auto-generated document.

Please note! This report will not go into detail into the specifics of why the results are different between different element representations. This report will only investigate and compare the results from different FEA software.

FEA Solvers

- Calculix v2.23
- Code Aster v18.1.7
- Abaqus v2025
- Sestra v11.3.1.0

Python packages

The following python packages were instrumental in the creation of this document and the FEA results herein.

Adapy

The intention behind *adapy* is to make it easier to work with finite element models and BIM models and act as a high-level scripting library for parametric and procedural modelling techniques.

Paradoc

paradoc was created to simplify the generation of reports by creating the structure of the document and text in markdown with a string substitution scheme that lets you easily pass in tables, functions and finally be able to produce production ready documents in Microsoft Word.

Summary

A summary of all performed analyses will be performed in this section and a percentage difference for each FEA solver per type of analysis will be calculated and presented.

Analyses

Eigenvalue Analysis

A simple cantilevered beam is subjected to eigenvalue analysis with a total of 11 eigenmodes requested. 47 cases are compared across solvers: *abaqus*, *calculix*, *code_aster*, *sesam*.

The beam model will be analyzed by varying the following parameters:

- Mesh type (Solid, Shell, Line)
- Mesh element types (TET, HEX, TRI, QUAD)
- Mesh element order (1st and 2nd order)
- Reduced integration elements (R)
- Different FEA solvers (Calculix, Code Aster, Abaqus, Sesam)

Model Description

Property	Value
Description	Beam("MyBeam", [0.0, 0.5, 0.5], [3.0, 0.5, 0.5], "IPE400", "S420")
Length	3.00 m
Section	IPE400
Material	S420
Young's modulus	2.100e+11 Pa
Yield stress	4.200e+08 Pa
Density	7850 kg/m ³

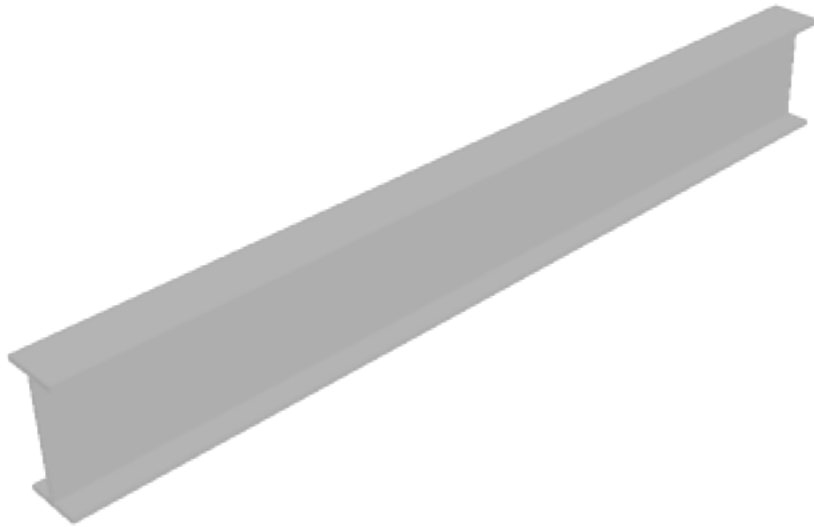


Figure 1: Cantilever beam geometry.

Summary

This section presents a comparison between the calculated results from the eigenvalue analysis of a cantilever beam using the different FEA tools.

Note! The Sestra and Abaqus analyses are not performed as part of the github actions step. The eigenmode results are kept in cached json files and imported during the compilation of the report using **paradoc**.

Eigenfrequency vs. mode number

Eigenfrequency vs. mode number, per FEA case

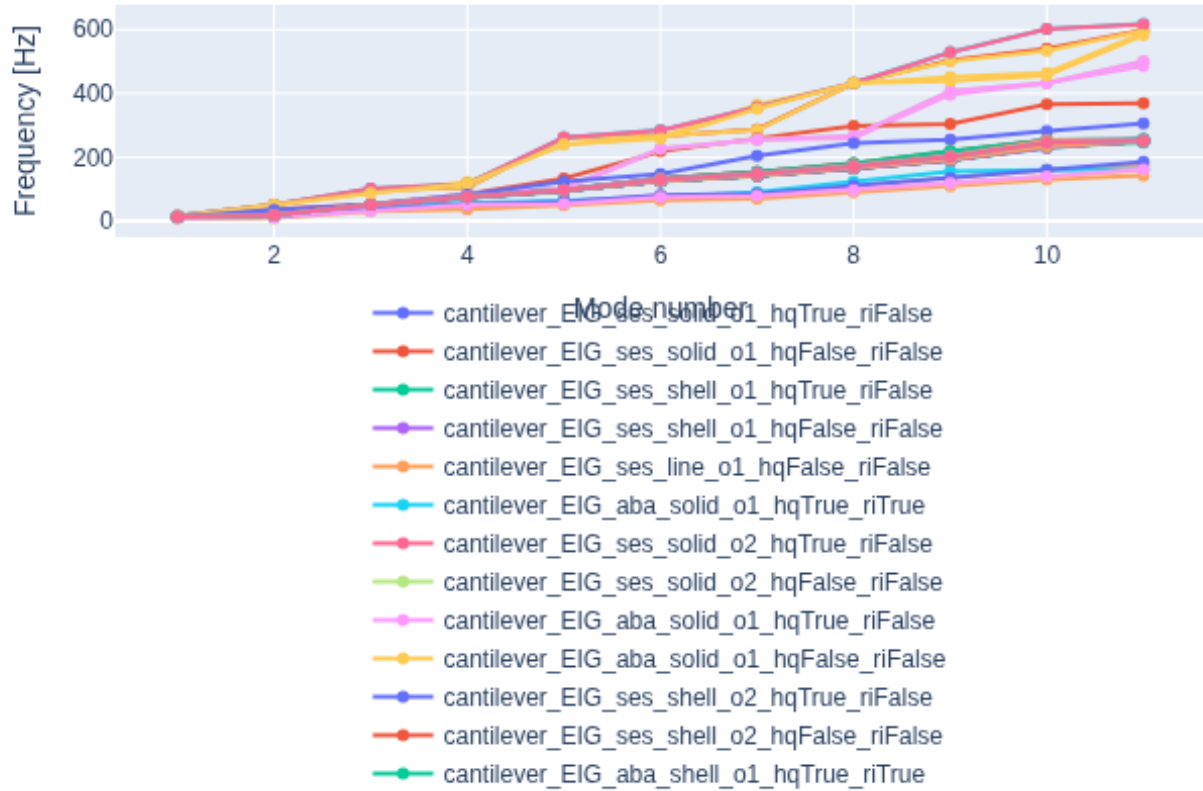


Figure 2: Eigenfrequency vs. mode number across FEA cases.

Comparison tables

Columns are sortable; the table grammar `{tbl:sortby:Mode:asc;index:no}` sets the initial sort and hides the index column.

Table 2: Eigenfrequency comparison (Hz) — solid, 1st order.

Mode	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	12.9766	15.7932	12.514	13.435	15.79	15.9285	15.9277	13.6205	13.6205	14.3018	13.5291
2	20.3015	51.5418	34.157	20.731	51.532	51.5896	51.5872	21.0685	21.0685	51.6653	34.7401
3	50.6181	97.7314	49.598	50.678	97.588	102.446	102.41	50.8252	50.8252	88.2331	50.7365
4	77.3921	105.691	55.271	82.799	104.8	116.744	116.512	84.066	84.066	116.873	82.2962
5	98.1185	260.887	64.305	100.19	260.59	261.877	261.806	102.334	102.334	240.766	123.303
6	133.016	267.131	74.866	223.14	266.26	284.697	284.465	227.25	227.25	258.286	147.139
7	153.833	287.461	90.033	254.98	285.05	357.062	356.306	255.872	255.872	351.823	205.267
8	178.565	432.347	124.58	260.1	432.31	432.36	432.35	266.519	266.519	431.955	243.985
9	214.689	503.862	155.99	396.57	500.86	529.297	528.489	407.869	407.869	439.038	254.838
10	253.463	539.506	159.95	431.8	534.26	601.943	601.586	432.207	432.207	456.762	282.888
11	256.05	598.2	162.56	486.96	596.78	617.646	616.155	500.931	500.931	582.562	305.247

Table 3: Eigenfrequency comparison (Hz) — solid, 2nd order.

Mode	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	12.9541	12.9537	12.943	12.955	12.954	12.9542	12.9542	12.9551	12.9551	12.9428	12.9427
2	20.0445	20.2945	20.029	20.15	20.294	20.2876	20.2877	20.1503	20.1503	20.0288	20.0288
3	50.5342	50.5401	50.498	50.541	50.54	50.5401	50.5402	50.5412	50.5412	50.4977	50.4977
4	76.7467	77.1278	76.687	76.89	77.128	77.2297	77.2297	76.8903	76.8903	76.6876	76.6875
5	97.4723	97.8296	97.391	97.594	97.83	97.8506	97.8505	97.5939	97.5939	97.3913	97.3912
6	130.865	132.478	130.81	131.37	132.48	133.015	133.014	131.365	131.365	130.814	130.809

Mode	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
7	148.496	153.631	148.47	149.96	153.63	154.804	154.802	149.958	149.958	148.478	148.474
8	172.243	178.114	172.17	173.92	178.12	181.029	181.026	173.925	173.925	172.177	172.171
9	201.904	215.815	201.84	205.29	215.82	219.501	219.497	205.292	205.292	201.846	201.839
10	246.353	253.203	246.17	251.35	253.2	253.193	253.193	251.347	251.347	246.177	246.165
11	252.742	254.466	252.57	252.92	254.47	254.685	254.684	252.917	252.917	252.573	252.573

Table 4: Eigenfrequency comparison (Hz) — shell, 1st order.

Mode	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	aba_TRIR	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	12.7628	13.6414	12.373	12.78	13.6869	13.7254	13.642	12.7639	13.1463	14.2558
2	19.3943	20.1983	19.23	19.593	20.3643	36.6896	20.4181	19.6304	19.9719	53.2618
3	51.9912	52.1922	51.849	51.998	52.1874	52.2485	52.1927	51.9997	52.0595	87.9153
4	75.1918	79.5226	73.558	75.683	80.2058	83.7093	79.6596	75.4574	77.2361	121.85
5	95.9297	101.756	93.709	96.393	102.043	132.928	102.01	96.2959	98.7619	239.804
6	125.116	125.093	126.87	126.96	124.093	218.167	125.459	125.898	125.442	262.83
7	141.556	143.164	144.58	145.57	145.486	259.245	144.895	145.282	143.864	365.1
8	165.03	166.668	168.38	169.39	168.62	297.856	168.951	169.441	167.974	431.774
9	190.099	191.533	197.51	198.75	199.719	304.464	195.184	200.494	193.96	451.745
10	229.46	230.489	241.27	242.55	242.995	365.943	235.115	247.276	233.817	464.44
11	250.786	257.362	245.07	252.49	257.447	368.764	257.409	251.554	257.105	589.24

Table 5: Eigenfrequency comparison (Hz) — shell, 2nd order.

Mode	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	aba_TRI	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	12.7554	12.7558	12.758	12.758	12.756	12.7562	12.7566	12.7576	12.7561	12.7559
2	19.4731	19.5048	19.486	19.486	19.567	19.5254	19.4509	19.5638	19.4736	19.5021
3	51.9702	51.9704	51.998	51.998	51.969	51.974	51.97	51.9801	51.97	51.9741
4	75.1245	75.1716	75.149	75.149	75.145	75.1848	75.1443	75.2685	75.1252	75.1399
5	95.8886	95.9337	95.92	95.92	96.001	95.9713	95.8707	96.0372	95.8893	95.9349
6	124.987	125.173	125	125	125.21	125.465	125.087	125.889	124.987	125.257
7	142.234	142.768	142.32	142.32	142.77	142.995	142.359	143.72	142.233	142.497
8	165.718	166.334	165.85	165.85	166.6	166.579	165.79	167.347	165.719	165.981
9	191.999	193.308	192.18	192.18	192.84	194.014	192.406	195.577	191.998	192.87
10	232.626	234.613	232.87	232.87	233.36	236.042	233.389	238.389	232.628	234.347
11	250.095	250.24	250.17	250.17	250.13	250.287	250.175	250.521	250.096	250.147

Table 6: Eigenfrequency comparison (Hz) — line, 1st order.

Mode	ses	aba	ca
1	12.2454	10.785	12.2454
2	12.9431	12.928	12.9793
3	36.7525	32.342	36.7525
4	44.9622	50.543	52.9559
5	61.3087	53.855	61.3087
6	79.793	75.296	81.3401
7	85.9466	79.59	85.9466
8	110.699	96.637	110.699
9	135.6	117.85	135.6
10	160.681	138.9	160.681
11	176.495	159.77	185.976

Table 7: Eigenfrequency comparison (Hz) — line, 2nd order.

Mode	ses	aba
1	10.039	10.786
2	10.6144	12.932
3	30.1078	32.358
4	36.752	50.557
5	50.1488	53.93
6	65.3265	75.502
7	70.1429	79.684
8	90.0695	97.074
9	109.907	118.65
10	129.631	140.22

Mode	ses	aba
11	142.572	161.8

Effective modal mass

Effective modal mass [kg] per case, summed over the captured modes in the global X / Y / Z directions. Every solver reports it; Code Aster and Sesam give translational mass only. Summing over enough modes approaches the structure's total mass in each direction.

Table 8: Effective modal mass [kg] per case, summed over the captured modes in the global X/Y/Z directions. Code_Aster and Sesam report translational effective mass only.

Case	Modes	$\Sigma\text{Meff X}$	$\Sigma\text{Meff Y}$	$\Sigma\text{Meff Z}$
aba_line_o1	11	0	152.8	118.2
aba_line_o2	11	0	152.8	118.2
aba_shell_o1_QUAD	11	0	168	122
aba_shell_o1_QUADR	11	0	168.4	122
aba_shell_o2_QUAD	11	0	167.8	122
aba_shell_o2_QUADR	11	0	167.8	122
aba_shell_o2_TRI	11	0	167.9	122
aba_solid_o1_HEX	11	153.5	170.5	158.2
aba_solid_o1_HEXR	11	0	154.3	119
aba_solid_o1_TET	11	153.4	172	170.9
aba_solid_o2_HEX	11	0	163.3	158.6
aba_solid_o2_HEXR	11	0	163.2	158.7
aba_solid_o2_TET	11	0	162	158.6
ca_line_o1	11	0	152.3	116.5
ca_shell_o1_QUAD	11	0	167.6	163.7
ca_shell_o1_TRI	11	0	167.3	163.7
ca_shell_o2_QUAD	11	0	167.8	122
ca_shell_o2_TRI	11	0	167.8	122
ca_solid_o1_HEX	11	153.5	170.8	158.3
ca_solid_o1_HEXR	11	0	164.7	158.5
ca_solid_o1_TET	11	153.4	172.6	171
ca_solid_o2_HEX	11	0	163.3	158.6
ca_solid_o2_HEXR	11	0	163.2	158.7
ca_solid_o2_TET	11	0	162.2	158.6
ccx_shell_o1_QUAD	11	0	168.1	122
ccx_shell_o1_QUADR	11	158	176.8	176.5
ccx_shell_o1_TRI	11	0	174.8	163.6
ccx_shell_o2_QUAD	11	0	167.8	122
ccx_shell_o2_QUADR	11	0	167.8	122
ccx_shell_o2_TRI	11	0	167.8	122
ccx_solid_o1_HEX	11	153.4	170.7	158.2
ccx_solid_o1_HEXR	11	153.5	171.8	171.3
ccx_solid_o1_TET	11	153.4	172.6	171
ccx_solid_o2_HEX	11	0	163.3	158.6
ccx_solid_o2_HEXR	11	0	163.2	158.7
ccx_solid_o2_TET	11	0	162.2	158.6
ses_line_o1	11	0	153	166.4
ses_line_o2	11	0	231.8	252.3
ses_shell_o1_QUAD	11	0	167.6	122
ses_shell_o1_TRI	11	0	167.1	163.6
ses_shell_o2_QUAD	11	0	167.8	122
ses_shell_o2_TRI	11	0	167.9	122
ses_solid_o1_HEX	11	0	161.7	158.6
ses_solid_o1_TET	11	153.4	172.1	170.9
ses_solid_o2_HEX	11	0	163.1	158.7
ses_solid_o2_TET	11	0	162	158.6

The per-mode effective masses and participation factors, compared across solvers for every mesh configuration, are in the appendix.

Short description:

Fem formats

- ccx: Calculix
- ca: Code Aster
- ses: Sesam

- aba: Abaqus

Element Types

- TET: Tetrahedrons
- HEX: Hexahedrons
- TRI: Triangle
- QUAD: Quadrilateral

Reduced Integration

All element types ending with capital R (QUAD $\mathbf{R}$, HEX $\mathbf{R}$ etc.) are reduced integration elements.

Nonlinear Analysis

A simple cantilever beam with a series of cutouts is subjugated to a large vertical acceleration field. The level of plastic strains are monitored for comparison across different FE tools.

Model Description

Summary

Plate Analysis

The analyses above are one beam, in three representations. This section is the plate case: an `ada.Plate` object, meshed into shell elements by `adapy`'s own meshing module, written out as an input deck per solver, and checked against a closed form as well as against the other solvers.

Nothing here drives a solver through its API. Each solver reads a file `adapy` wrote — an `.inp`, a `.fem`, a `.comm/.med` — which is the same route a user's own model takes, so what this section verifies is the thing `adapy` actually ships.

9 cases ran on the machine that built this report, using: `calculix`, `code_aster`. The remaining columns come from cached results measured elsewhere, the same arrangement the eigenvalue section uses for Abaqus and Sestra.

Model Description

A rectangular strip, simply supported on its two short edges and held in cylindrical bending on the two long ones, under a uniform surface pressure.

Property	Value
Span	4.00 m
Width	0.50 m
Thickness	0.010 m
Pressure	1000 Pa
Material	S355 ($E = 210$ GPa, $\nu = 0.3$, $\rho = 7850$ kg/m ³)

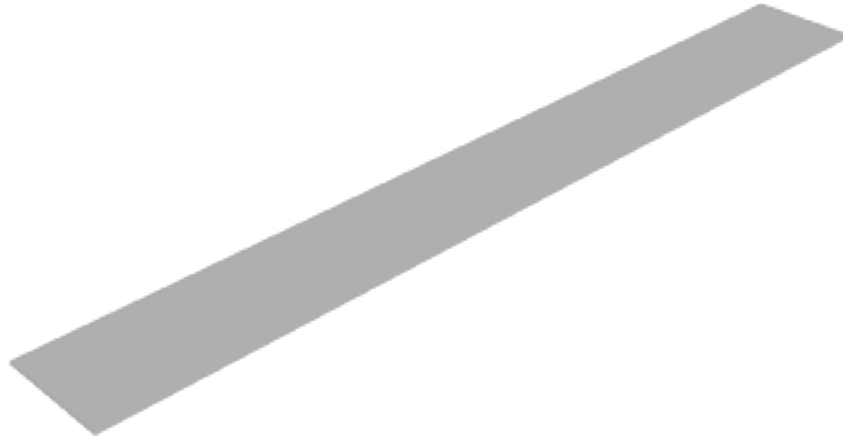


Figure 3: Plate strip geometry.

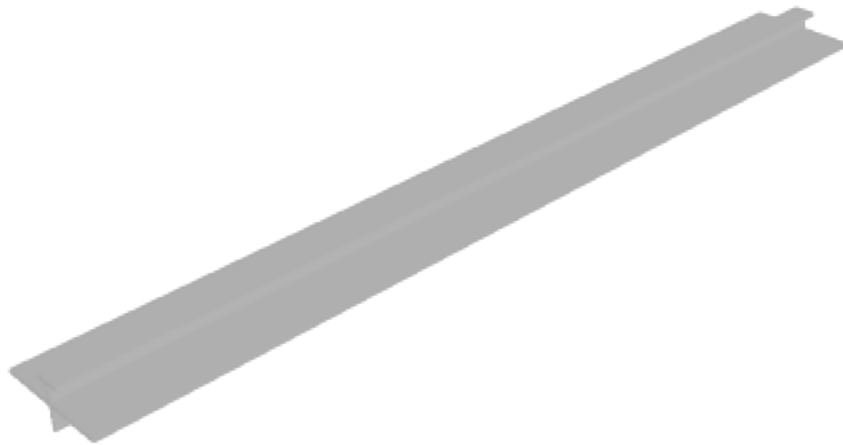


Figure 4: Plate strip with a T-profile stiffener on its centreline.

The span-to-thickness ratio is 400, so transverse shear sits several orders below the discretisation error and the thin-plate closed forms are the right reference rather than an approximation of one.

The supports are written as four node sets rather than one per edge. Simple support and cylindrical bending overlap at the four corners, and the obvious spelling constrains u_2 twice there: Abaqus and Sestra accept that, while Code_Aster refuses it outright (<ASSEMBLA_26> ... est bloqué plusieurs fois). A model that only some solvers will read is not a cross-solver case, so the corner nodes carry only the rotation the long edges add.

Static analysis under pressure

The static case is the only one that reaches the distributed-load records — Abaqus' *Dsload, Calculix' *DLOAD, Code_Aster's FORCE_COQUE and Sesam's BEUSLO. The eigenvalue analyses reach the mass and stiffness matrices and nothing else, so a pressure written wrongly is invisible to them.

Mid-span deflection against the closed form $5 q L^4 / (384 D)$, with $D = E t^3 / (12 (1 - \nu^2))$ — which evaluates to 0.173333 m for this strip. Halving the seed should quarter the remaining error; the three rows are a factor of two apart so the order is readable off the table rather than asserted.

Table 10: Plate strip mid-span deflection [m] under 1 kPa, by solver and mesh seed. The closed form is $5 q L^4 / (384 D)$ for a strip in cylindrical bending.

Seed [m]	aba	ca	ccx	ses	closed form
0.125	0.173065	0.173198	0.173065	0.173198	0.173333
0.0625	0.173269	0.173299	0.173268	0.173299	0.173333
0.03125	0.173319	0.173325	0.173319	0.173325	0.173333

The same strip with a T-profile stiffener along its centreline, meshed as line elements sharing the shells' nodes. There is no closed form for it — a parallel-spring estimate is not one — so this is an agreement case between solvers, and it is what carries a T section through the deck writers.

Table 11: The same strip with a T-profile stiffener on its centreline [m]. No closed form: this is a cross-solver agreement case.

Seed [m]	aba_st	ca_st	ses_st
0.125	0.000584531	0.000710295	0.00073971
0.0625	0.000585478	0.000710711	0.000738964
0.03125	0.000585996	0.000710815	0.000736999

Sign convention

Every writer above places a positive pressure so that it pushes **into** the face it names. That is Abaqus' convention, and it has to be shared, because a load direction that depends on the output format makes a cross-solver comparison meaningless.

It is worth stating which face that is, because it is not a global direction: gmsh winds every element of this strip with its normal along $-z$, so the positive face looks *down* and a positive pressure on it moves the strip *up*. The deflections above are therefore positive. tests/fem/test_pressure_load_cross_format.py pins this per format.

Eigenvalue analysis

The same plate, as an eigenvalue analysis, against $f_n = n^2 \pi / (2 L^2) \sqrt{D / (\rho t)}$ — the simply supported beam frequencies with the beam's $EI / (\rho A)$ replaced by the strip's $D / (\rho t)$. Valid for the cylindrical modes, which are the ones the long-edge constraint admits.

Table 12: Plate strip eigenfrequencies [Hz], by solver, at a 0.0625 m seed. The closed form is $f_n = n^2 \pi / (2 L^2) \sqrt{D / (\rho t)}$, valid for the cylindrical modes the long-edge constraint admits.

Mode	aba	ca	ccx	ses	closed form
1	1.5371	1.53661	1.53675	1.53661	1.53661
2	6.1536	6.14644	6.14861	6.14644	6.14644
3	13.866	13.8295	13.8405	13.8295	13.8295
4	24.7	24.5858	24.6205	24.5858	24.5857
5	38.695	38.4153	38.5002	38.4153	38.4152
6	55.9	55.3181	55.4943	55.3182	55.3179

Short description of the solver column names:

- ccx: Calculix
- ca: Code Aster
- ses: Sesam
- aba: Abaqus

A_st suffix marks the stiffened variant.

Detailed results

Mode shapes and deflected shapes from every format that ran on the machine that built this report, laid out so the formats can be read against each other: one section per mesh configuration, one heading per mode, and the formats side by side under it. A swapped mode pair or a differently deflected shape shows up as two pictures that do not match.

Abaqus and Sesam cannot run where this report is built. Their mode shapes are the raw results a licensed machine committed beside its cached frequencies, and the figures are rendered from them here; a case with no committed results has no figures. Solver versions: Abaqus v2025, Calculix v2.23, Code Aster v18.1.7, Sesam v11.3.1.0.

Cantilever modal participation

Per-mode effective modal mass and participation factors in the global X / Y / Z directions, for every mesh configuration, with the formats side by side. Code Aster and Sesam report the translational directions only.

A participation factor Γ is relative to how the solver normalised its eigenvectors: Abaqus scales the largest displacement to 1, the others scale to unit generalised mass. Raw factors from different solvers therefore do not compare. The tables give the factor scaled to unit generalised mass, $\text{sign}(\Gamma) \cdot \sqrt{M_{\text{eff}}}$, which is what the others report as-is. Its sign is the solver's choice of eigenvector sign and may differ from mode to mode. The effective mass $M_{\text{eff}} = \Gamma^2 \cdot m_{\text{gen}}$ does not depend on the normalisation.

Solid, 1st order

Table 13: Effective modal mass [kg] per mode, global X/Y/Z — solid, order 1.

Mode	Direction	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	X	0	0	0	0	0	0	0	0	0	0	0
1	Y	116.4	117.5	116.9	116.4	117.5	118.2	118.2	116.4	116.4	116.5	116.4
1	Z	0	0	0	0	0	0	0	0	0	0	0
2	X	0	0	0	0	0	0	0	0	0	0	0
2	Y	0	0	0	0	0	0	0	0	0	0	0
2	Z	0	118.3	0	0	118.2	118.4	118.4	0	0	118.5	0
3	X	0	0	0	0	0	0	0	0	0	0	0
3	Y	0	34.9	0	0	34.9	35.5	35.5	0	0	36.2	0
3	Z	118.3	0	119	118.2	0	0	0	118.2	118.2	0	118.3
4	X	0	0	0	0	0	0	0	0	0	0	0
4	Y	35.9	0	2.1	36	0	0	0	36	36.1	0	36.1
4	Z	0	0	0	0	0	0	0	0	0	0	0
5	X	0	0	0	0	0	0	0	0	0	0	0
5	Y	0	0	0	0	0	0	0	0	0	12.6	0
5	Z	0	39.8	0	0	39.7	39.9	39.9	0	0	0	0
6	X	0	0	0	0	0	0	0	0	0	0	0
6	Y	0	13.3	31.4	12.4	13.2	12.8	12.8	12.5	12.5	0	0
6	Z	0	0	0	0	0.1	0	0	0	0	40.2	0
7	X	0	0	0	0	0	0	0	0	0	0	0
7	Y	3.2	0	2.8	0	0	0	0	0	0	0	8.9
7	Z	0	0	0	40	0	0	0	40	40.1	0	0
8	X	0	153.4	0	0	153.4	153.4	153.4	0	0	153.5	0
8	Y	5.7	0	0	0	0	0	0	0	0	0	3.1
8	Z	0	0	0	0	0	0	0	0	0	0	0.3
9	X	0	0	0	0	0	0	0	0	0	0	0
9	Y	0.4	6.3	1.1	5.7	6.3	6.1	6.1	5.9	5.9	0.4	0
9	Z	0	0	0	0	0	0	0	0	0	0	39.9
10	X	0	0	0	153.5	0	0	0	153.4	153.5	0	0
10	Y	0	0	0	0	0	0	0	0	0	6.1	0
10	Z	40.3	0	0	0	0	12.8	12.8	0	0	0	0
11	X	0	0	0	0	0	0	0	0	0	0	0
11	Y	0	0	0	0	0	0	0	0	0	0	0
11	Z	0	12.8	0	0	12.8	0	0	0	0	12.7	0

Table 14: Participation factor per mode scaled to unit generalised mass [√kg], global X/Y/Z — solid, order 1.

Mode	Direction	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	X	-0	0	0	-0	0	-0	0	-0	0	0	0
1	Y	10.79	-10.841	10.813	10.788	10.838	-10.871	10.871	10.787	10.787	10.794	10.791
1	Z	0	0.017	-0	-0	-0.017	0.019	-0.019	-0	-0	0	-0.001
2	X	-0	-0	0	0	0	0	0	-0	-0	-0	0.001
2	Y	-0	-0.028	0	0	0.028	0.03	0.03	0	0	0	0.022
2	Z	0	-10.876	-0	-0	10.874	10.88	10.88	-0	0	-10.884	-0
3	X	-0	0	-0	-0	-0	0	-0	-0	-0	0	0
3	Y	-0	5.911	0	0	-5.909	5.961	-5.961	0	0	-6.013	0
3	Z	10.876	-0.019	10.907	10.872	0.019	-0.02	0.02	10.871	10.872	-0	10.876
4	X	-0	-0.003	-0	-0	0.003	0.003	0.003	0	0	0	-0
4	Y	5.995	0.069	-1.456	-6.002	-0.075	-0.108	-0.11	6.004	-6.004	-0	-6.01
4	Z	-0	-0.003	0	0	0.003	0.007	0.008	0	-0	-0	-0.004
5	X	0	-0.001	-0	0	-0.001	0	-0	-0	0	-0	-0.002
5	Y	-0	0.122	-0	-0	0.132	-0.028	0.029	0	-0	-3.549	-0.084
5	Z	-0	-6.305	0	0	-6.305	6.313	-6.315	-0	-0	0	0.006
6	X	-0	0	0	-0	0	0	-0.001	0	-0	0	-0.001
6	Y	-0.114	3.642	-5.603	3.522	3.638	-3.576	3.577	3.53	3.532	-0	0.192
6	Z	0	0.207	-0	0	0.226	-0.056	0.057	0	-0	-6.34	-0.015
7	X	-0	0	-0	-0	0	-0.021	-0.021	0	0	0	0
7	Y	-1.788	0.027	-1.671	0	0.03	0.04	0.04	-0	-0	-0	2.99
7	Z	0	-0.033	0	-6.326	-0.035	-0.02	-0.02	6.327	-6.329	-0	0.071
8	X	-0	12.384	-0	-0	12.385	12.384	12.386	0	-0	12.389	0.001
8	Y	2.39	-0.001	-0	0	-0.001	0	0	0	0	0	1.76
8	Z	0	0	-0	0	0	-0	-0	-0	-0	0	-0.503
9	X	-0	-0.005	-0	0	-0.006	0.001	0.001	-0	-0	0	0.001
9	Y	0.662	-2.518	-1.056	-2.385	-2.515	-2.462	-2.464	2.426	-2.43	-0.619	-0.115
9	Z	-0	0.007	-0	0	0.007	0.064	0.064	0	0	-0	-6.318
10	X	-0	-0.015	0.019	12.391	-0.016	0.001	-0.001	-12.385	12.388	-0	0.006
10	Y	0	-0.015	-0	0	-0.017	-0.045	0.045	-0	-0	2.478	0.086
10	Z	-6.346	0.003	0	-0	0.003	-3.572	3.576	0	0	-0	-0.006
11	X	0	0.001	-0	0	-0.001	-0.012	0.012	0	0	-0	0.005
11	Y	-0	0	0	0	-0	0.016	-0.016	-0	0	-0	0.009
11	Z	-0	-3.578	-0	0	3.578	0.029	-0.031	0	-0	3.558	-0.001

Solid, 2nd order

Table 15: Effective modal mass [kg] per mode, global X/Y/Z — solid, order 2.

Mode	Direction	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	X	0	0	0	0	0	0	0	0	0	0	0
1	Y	116.5	116.5	116.6	116.5	116.5	116.5	116.5	116.5	116.5	116.6	116.6
1	Z	0	0	0	0	0	0	0	0	0	0	0
2	X	0	0	0	0	0	0	0	0	0	0	0
2	Y	0	0	0	0	0	0	0	0	0	0	0
2	Z	0	0	0	0	0	0	0	0	0	0	0
3	X	0	0	0	0	0	0	0	0	0	0	0
3	Y	0	0	0	0	0	0	0	0	0	0	0
3	Z	118.4	118.4	118.4	118.4	118.4	118.4	118.4	118.4	118.4	118.4	118.4
4	X	0	0	0	0	0	0	0	0	0	0	0
4	Y	35.9	36	35.9	35.9	36	36	36	35.9	35.9	35.9	35.9
4	Z	0	0	0	0	0	0	0	0	0	0	0
5	X	0	0	0	0	0	0	0	0	0	0	0
5	Y	0	0	0	0	0	0	0	0	0	0	0
5	Z	0	0	0	0	0	0	0	0	0	0	0
6	X	0	0	0	0	0	0	0	0	0	0	0
6	Y	0	0	0	0	0	0	0	0	0	0	0
6	Z	0	0	0	0	0	0	0	0	0	0	0
7	X	0	0	0	0	0	0	0	0	0	0	0
7	Y	3.4	3.1	3.4	3.3	3.1	3.2	3.2	3.3	3.3	3.4	3.4
7	Z	0	0	0	0	0	0	0	0	0	0	0
8	X	0	0	0	0	0	0	0	0	0	0	0
8	Y	5.3	5.8	5.3	5.4	5.8	5.9	5.9	5.4	5.4	5.3	5.3
8	Z	0	0	0	0	0	0	0	0	0	0	0
9	X	0	0	0	0	0	0	0	0	0	0	0
9	Y	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6
9	Z	0	0	0	0	0	0	0	0	0	0	0
10	X	0	0	0	0	0	0	0	0	0	0	0
10	Y	1.5	0	1.5	1.6	0	0	0	1.6	1.6	1.5	1.5

Mode	Direction	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
10	Z	0	40.2	0	0	40.2	40.2	40.2	0	0	0	0
11	X	0	0	0	0	0	0	0	0	0	0	0
11	Y	0	0	0	0	0	0	0	0	0	0	0
11	Z	40.3	0	40.3	40.3	0	0	0	40.3	40.3	40.3	40.3

Table 16: Participation factor per mode scaled to unit generalised mass [$\sqrt{\text{kg}}$], global X/Y/Z — solid, order 2.

Mode	Direction	ses_HEX	ses_TET	aba_HEXR	aba_HEX	aba_TET	ccx_TET	ca_TET	ccx_HEX	ca_HEX	ccx_HEXR	ca_HEXR
1	X	0	-0	-0	0	0	-0	0	-0	-0	0	0
1	Y	10.794	-10.794	10.796	10.794	10.794	-10.794	10.794	10.794	10.794	10.796	10.796
1	Z	0	-0	0	0	0	-0	0	-0	0	0	-0
2	X	0	0	-0	-0	0	-0	0	-0	-0	-0	0
2	Y	-0	-0	0	0	-0	0	0	0	0	-0	0
2	Z	0	0	-0	0	0	-0	0	0	0	0	-0
3	X	0	0	-0	-0	0	-0	-0	-0	-0	-0	-0
3	Y	0	-0	-0	-0	-0	-0	-0	0	-0	-0	0
3	Z	10.88	10.879	10.882	10.879	10.879	10.879	10.879	10.879	10.879	10.882	10.882
4	X	-0	0	-0	-0	0	-0	-0	0	0	0	-0
4	Y	-5.991	-5.997	-5.992	-5.993	-5.997	-6.004	-6.004	-5.993	-5.993	-5.992	-5.992
4	Z	0	-0	-0	-0	-0	0	0	0	-0	-0	-0
5	X	-0	0	0	0	-0	-0	0	0	-0	-0	-0
5	Y	0	0.001	-0	-0	-0.001	0.001	-0.001	0	-0	-0	-0
5	Z	-0	-0	-0	-0	0	-0	0	-0	0	0	0
6	X	0	-0	-0	0	0	0	0	0	-0	-0	0
6	Y	-0.096	-0.119	-0.097	-0.103	0.119	-0.093	-0.093	0.103	-0.103	0.096	-0.097
6	Z	0	0	0	-0	-0	0	0	0	-0	0	-0
7	X	0	0	-0	0	-0	0	0	-0	0	0	0
7	Y	-1.839	-1.768	1.84	1.818	1.768	1.799	1.799	1.818	1.818	1.84	1.84
7	Z	-0	0	-0	0	-0	0	0	0	0	0	-0
8	X	0	0	0	0	-0	0	0	-0	-0	0	0
8	Y	-2.305	-2.406	2.304	2.328	2.405	2.436	2.435	2.328	2.328	2.304	2.304
8	Z	-0	0	0	-0	-0	-0	-0	-0	-0	0	-0
9	X	-0	0	-0	0	-0	0	0	-0	0	-0	-0
9	Y	-0.746	-0.774	-0.747	-0.719	0.774	0.69	0.69	0.72	-0.719	0.747	-0.747
9	Z	0	-0	0	0	0	-0	-0	0	-0	0	-0
10	X	-0	-0	0	0	-0	-0	0	-0	-0	0	0
10	Y	1.211	0	1.212	1.267	0	-0	0	-1.267	1.267	-1.213	1.212
10	Z	0	-6.344	-0	-0	-6.344	6.344	-6.344	0	-0	0	-0
11	X	-0	-0	0	0	-0	-0	0	-0	-0	0	-0
11	Y	0	-0.001	0	0	-0.001	-0.008	0.008	0	-0	-0	-0
11	Z	6.346	-0.006	-6.345	-6.344	-0.006	0.004	-0.004	6.345	-6.344	6.345	-6.345

Shell, 1st order

Table 17: Effective modal mass [kg] per mode, global X/Y/Z — shell, order 1.

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	X	0	0	0	0	0	0	0	0	0
1	Y	119.9	119.9	120	119.9	119.7	119.9	119.9	119.9	119.9
1	Z	0	0	0	0	0	0	0	0	0
2	X	0	0	0	0	0	0	0	0	0
2	Y	0	0	0	0	0	0	0	0	0
2	Z	0	0	0	0	0	0	0	0	122.1
3	X	0	0	0	0	0	0	0	0	0
3	Y	0	0	0	0	0	0	0	0	37.2
3	Z	122	122	122	122	122.1	122	122	122	0
4	X	0	0	0	0	0	0	0	0	0
4	Y	36.8	36.6	37	36.9	37.3	36.6	36.9	36.8	0
4	Z	0	0	0	0	0	0	0	0	0
5	X	0	0	0	0	0	0	0	0	0
5	Y	0	0	0	0	0	0	0	0	13
5	Z	0	0	0	0	0	0	0	0	0
6	X	0	0	0	0	0	0	0	0	0
6	Y	0	0.1	0	0	12.7	0.1	0	0	0
6	Z	0	0	0	0	0	0	0	0	41.5
7	X	0	0	0	0	0	0	0	0	0
7	Y	3.5	2.7	3.8	3.3	0	2.7	3.3	3.2	0

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
7	Z	0	0	0	0	41.6	0	0	0	0
8	X	0	0	0	0	0	0	0	0	158
8	Y	5.4	5.9	5.4	5.7	0	6	5.8	5.7	0
8	Z	0	0	0	0	0	0	0	0	0
9	X	0	0	0	0	0	0	0	0	0
9	Y	0.6	0.6	0.6	0.6	0	0.6	0.6	0.6	5.7
9	Z	0	0	0	0	0	0	0	0	0
10	X	0	0	0	0	0	0	0	0	0
10	Y	1.3	1.3	1.6	1.5	1.5	1.3	1.7	1.3	1
10	Z	0	0	0	0	0	0	0	0	0
11	X	0	0	0	0	0	0	0	0	0
11	Y	0	0	0	0	3.6	0	0	0	0
11	Z	0	41.6	0	0	0	41.6	0	41.6	12.9

Table 18: Participation factor per mode scaled to unit generalised mass [√kg], global X/Y/Z — shell, order 1.

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	X	-0	-0	-0	-0	0	-0	0	0	-0
1	Y	10.95	-10.951	10.952	10.951	10.941	10.951	10.95	10.951	10.95
1	Z	-0	-0	-0	-0	0	0	0	-0	0
2	X	-0	0	-0	-0	-0	0	0	-0	-0
2	Y	-0	-0	0	0	0.002	-0	0	-0	0
2	Z	-0	0	0	0	-0	0	0	0	-11.051
3	X	0	-0	-0	-0	0	0	-0	-0	-0
3	Y	-0	0	0	0	0	-0	0	0	6.101
3	Z	-11.046	-11.047	11.046	11.046	-11.048	11.047	-11.045	11.046	0
4	X	-0	0	-0	-0	-0	0	-0	-0	0
4	Y	-6.067	-6.048	-6.081	-6.076	-6.104	-6.053	-6.072	6.065	0
4	Z	-0	-0	-0	-0	0	-0	0	0	0
5	X	0	-0	0	-0	0	0	-0	-0	-0
5	Y	0	0	-0	-0	-0.005	-0	-0	0	-3.601
5	Z	-0	-0	0	-0	-0	-0	0	-0	0
6	X	-0	-0	0	0	-0	-0	0	-0	0
6	Y	0.134	-0.252	-0.078	-0.132	-3.561	0.263	-0.174	-0.194	-0
6	Z	-0	0	-0	-0	-0	-0	-0	-0	-6.443
7	X	0	-0	-0	-0	-0	-0	-0	0	-0
7	Y	-1.86	-1.651	1.947	1.829	-0	-1.652	1.805	1.776	-0
7	Z	0	0	0	0	-6.446	0	0	0	0
8	X	0	-0	0	-0	0	0	-0	-0	12.568
8	Y	2.334	2.438	2.332	2.383	0.003	-2.455	-2.406	2.398	0
8	Z	0	-0	-0	-0	0	-0	0	-0	0
9	X	-0	-0	-0	0	-0	-0	-0	-0	-0
9	Y	-0.798	-0.781	-0.786	-0.771	-0.156	0.788	-0.76	-0.795	-2.388
9	Z	0	-0	0	0	0	-0	0	-0	-0
10	X	0	0	-0	0	-0	0	-0	-0	-0
10	Y	-1.15	-1.128	1.269	1.232	1.218	-1.148	1.31	1.152	1.006
10	Z	0	-0	0	0	-0	0	0	-0	-0
11	X	0	-0	-0	0	-0	0	0	0	-0
11	Y	-0	-0	0	0	-1.9	-0	0	0	0
11	Z	0	-6.451	0	0	0	6.453	0	6.453	3.589

Shell, 2nd order

Table 19: Effective modal mass [kg] per mode, global X/Y/Z — shell, order 2.

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	aba_TRI	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	X	0	0	0	0	0	0	0	0	0	0
1	Y	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9	119.9
1	Z	0	0	0	0	0	0	0	0	0	0
2	X	0	0	0	0	0	0	0	0	0	0
2	Y	0	0	0	0	0	0	0	0	0	0
2	Z	0	0	0	0	0	0	0	0	0	0
3	X	0	0	0	0	0	0	0	0	0	0
3	Y	0	0	0	0	0	0	0	0	0	0
3	Z	122	122	122	122	122	122	122	122	122	122
4	X	0	0	0	0	0	0	0	0	0	0
4	Y	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	aba_TRI	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
4	Z	0	0	0	0	0	0	0	0	0	0
5	X	0	0	0	0	0	0	0	0	0	0
5	Y	0	0	0	0	0	0	0	0	0	0
5	Z	0	0	0	0	0	0	0	0	0	0
6	X	0	0	0	0	0	0	0	0	0	0
6	Y	0	0	0	0	0	0	0	0	0	0
6	Z	0	0	0	0	0	0	0	0	0	0
7	X	0	0	0	0	0	0	0	0	0	0
7	Y	3.5	3.4	3.5	3.5	3.5	3.4	3.4	3.4	3.5	3.4
7	Z	0	0	0	0	0	0	0	0	0	0
8	X	0	0	0	0	0	0	0	0	0	0
8	Y	5.5	5.6	5.5	5.5	5.5	5.6	5.5	5.6	5.5	5.5
8	Z	0	0	0	0	0	0	0	0	0	0
9	X	0	0	0	0	0	0	0	0	0	0
9	Y	0.7	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.6
9	Z	0	0	0	0	0	0	0	0	0	0
10	X	0	0	0	0	0	0	0	0	0	0
10	Y	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
10	Z	0	0	0	0	0	0	0	0	0	0
11	X	0	0	0	0	0	0	0	0	0	0
11	Y	0	0	0	0	0	0	0	0	0	0
11	Z	0	0	0	0	0	0	0	0	0	0

Table 20: Participation factor per mode scaled to unit generalised mass [√kg], global X/Y/Z — shell, order 2.

Mode	Direction	ses_QUAD	ses_TRI	aba_QUADR	aba_QUAD	aba_TRI	ccx_TRI	ca_TRI	ccx_QUAD	ca_QUAD	ccx_QUADR
1	X	-0	-0	0	0	0	-0	0	0	-0	-0
1	Y	-10.952	10.952	10.951	10.951	10.952	10.952	10.952	10.951	10.952	10.951
1	Z	-0	-0	0	0	0	0	-0	0	0	0
2	X	-0	0	0	0	0	-0	-0	0	0	0
2	Y	0	0	0	0	0	0	-0	0	-0	0
2	Z	0	0	0	0	-0	-0	0	-0	-0	-0
3	X	-0	-0	0	0	0	-0	0	0	0	0
3	Y	-0	-0	0	0	0	0	0	0	0	0
3	Z	11.047	-11.047	11.044	11.044	11.047	-11.046	11.047	-11.046	11.047	-11.046
4	X	-0	-0	-0	-0	0	-0	-0	-0	0	0
4	Y	-6.071	6.072	-6.071	-6.071	-6.073	6.072	6.071	6.073	-6.071	6.071
4	Z	0	-0	0	0	0	-0	-0	-0	0	-0
5	X	0	-0	-0	-0	-0	0	-0	-0	0	-0
5	Y	0	0	-0	-0	-0	0	-0	-0	-0	-0
5	Z	-0	0	-0	-0	0	-0	-0	-0	-0	0
6	X	-0	0	-0	-0	-0	-0	0	-0	0	0
6	Y	-0.137	-0.144	-0.137	-0.137	-0.138	-0.144	0.142	0.141	-0.137	0.138
6	Z	0	0	0	0	-0	-0	-0	0	0	0
7	X	0	-0	-0	-0	-0	-0	-0	-0	-0	-0
7	Y	1.859	-1.85	1.858	1.858	1.88	1.848	-1.849	1.839	-1.859	1.852
7	Z	-0	0	-0	-0	0	0	0	0	0	0
8	X	-0	0	-0	-0	-0	0	-0	-0	-0	0
8	Y	-2.35	-2.358	2.351	2.351	2.349	2.356	2.353	-2.362	2.35	-2.35
8	Z	-0	-0	0	0	0	-0	0	0	0	0
9	X	0	0	-0	-0	0	-0	-0	0	-0	0
9	Y	-0.809	-0.801	-0.808	-0.808	-0.818	0.793	0.801	0.781	-0.809	0.799
9	Z	0	0	0	0	-0	-0	0	-0	-0	-0
10	X	-0	-0	-0	-0	-0	-0	0	-0	-0	-0
10	Y	-1.171	-1.185	1.17	1.17	1.175	1.193	1.178	-1.201	1.17	1.178
10	Z	-0	-0	-0	-0	0.001	0	0	-0	0	0
11	X	-0	-0	0	0	0	-0	-0	-0	-0	-0
11	Y	-0	0.001	0	0	0	0.001	-0.001	0	0	0
11	Z	0	-0	-0	-0	0	-0	-0	0	-0	-0

Line, 1st order

Table 21: Effective modal mass [kg] per mode, global X/Y/Z — line, order 1.

Mode	Direction	ses	aba	ca
1	X	0	0	0
1	Y	0	0	0

Mode	Direction	ses	aba	ca
1	Z	0	0	0
2	X	0	0	0
2	Y	116.7	116.6	116.5
2	Z	0	0	0
3	X	0	0	0
3	Y	0	0	0
3	Z	0	0	0
4	X	0	0	0
4	Y	0	0	0
4	Z	128	118.2	116.5
5	X	0	0	0
5	Y	0	0	0
5	Z	0	0	0
6	X	0	0	0
6	Y	36.3	0	35.8
6	Z	0	0	0
7	X	0	0	0
7	Y	0	36.2	0
7	Z	0	0	0
8	X	0	0	0
8	Y	0	0	0
8	Z	0	0	0
9	X	0	0	0
9	Y	0	0	0
9	Z	0	0	0
10	X	0	0	0
10	Y	0	0	0
10	Z	0	0	0
11	X	0	0	0
11	Y	0	0	0
11	Z	38.3	0	0

Table 22: Participation factor per mode scaled to unit generalised mass [$\sqrt{\text{kg}}$], global X/Y/Z — line, order 1.

Mode	Direction	ses	aba	ca
1	X	0	-0	-0
1	Y	0	-0	0
1	Z	-0	0	0
2	X	0	-0	0
2	Y	10.803	10.797	10.793
2	Z	-0	-0	0
3	X	-0	0	-0
3	Y	0	-0	-0
3	Z	-0	0	-0
4	X	-0	0	-0
4	Y	0	-0	-0
4	Z	-11.316	10.87	10.793
5	X	-0	-0	0
5	Y	-0	0	0
5	Z	0	0	0
6	X	-0	-0	-0
6	Y	-6.024	-0	-5.981
6	Z	-0	0	-0
7	X	-0	0	-0
7	Y	-0	-6.016	-0
7	Z	-0	-0	-0
8	X	0	-0	-0
8	Y	0	-0	-0
8	Z	-0	0	0
9	X	-0	0	-0
9	Y	0	0	0
9	Z	-0	0	-0
10	X	-0	0	-0
10	Y	0	0	0
10	Z	-0	-0	0
11	X	-0	0	-0
11	Y	0	-0	0
11	Z	-6.193	0	0

Line, 2nd order

Table 23: Effective modal mass [kg] per mode, global X/Y/Z — line, order 2.

Mode	Direction	ses	aba
1	X	0	0
1	Y	0	0
1	Z	0	0
2	X	0	0
2	Y	176.8	116.6
2	Z	0	0
3	X	0	0
3	Y	0	0
3	Z	0	0
4	X	0	0
4	Y	0	0
4	Z	192.8	118.2
5	X	0	0
5	Y	0	0
5	Z	0	0
6	X	0	0
6	Y	55	0
6	Z	0	0
7	X	0	0
7	Y	0	36.2
7	Z	0	0
8	X	0	0
8	Y	0	0
8	Z	0	0
9	X	0	0
9	Y	0	0
9	Z	0	0
10	X	0	0
10	Y	0	0
10	Z	0	0
11	X	0	0
11	Y	0	0
11	Z	59.6	0

Table 24: Participation factor per mode scaled to unit generalised mass [$\sqrt{\text{kg}}$], global X/Y/Z — line, order 2.

Mode	Direction	ses	aba
1	X	0	0
1	Y	0	0
1	Z	-0	-0
2	X	-0	-0
2	Y	13.297	10.798
2	Z	0	-0
3	X	0	0
3	Y	0	-0
3	Z	-0	-0
4	X	0	-0
4	Y	0	-0
4	Z	-13.884	10.871
5	X	-0	-0
5	Y	-0	0
5	Z	-0	0
6	X	0	-0
6	Y	-7.413	0
6	Z	-0	-0
7	X	-0	0
7	Y	0	-6.015
7	Z	0	-0
8	X	-0	0
8	Y	0	0
8	Z	0	-0
9	X	0	0
9	Y	-0	0
9	Z	-0	-0
10	X	0	-0
10	Y	0	0
10	Z	-0	0
11	X	0	-0

Mode	Direction	ses	aba
11	Y	0	-0
11	Z	-7.719	0

Cantilever eigenvalue analysis

Line, 1st order

Mode 1

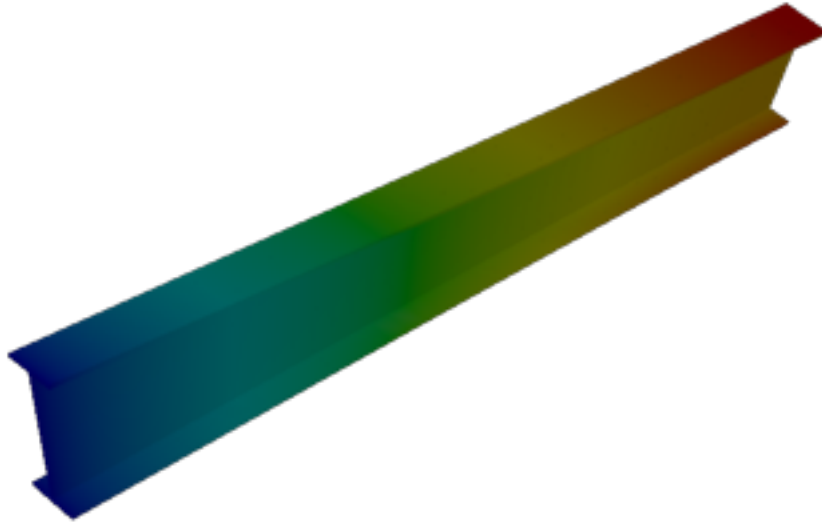


Figure 5: Abaqus — mode 1, 10.785 Hz

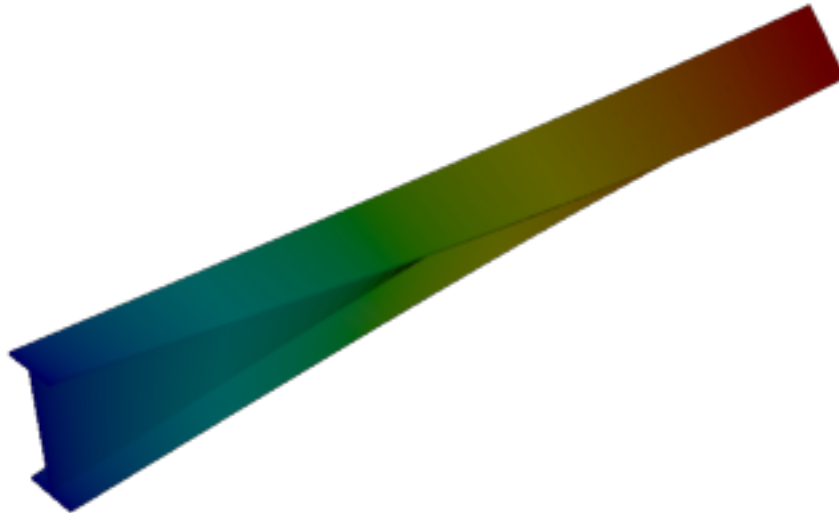


Figure 6: Sesam — mode 1, 12.245 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	10.785	-6.34	4592.3	4.83e-34	1.00e-29	1.05e-31	-2.20e-17	-3.17e-15	3.24e-16
Sesam	12.245	+6.34	5919.77	8.88e-35	2.77e-27	1.18e-30	9.42e-18	5.26e-14	-1.09e-15

Mode 2

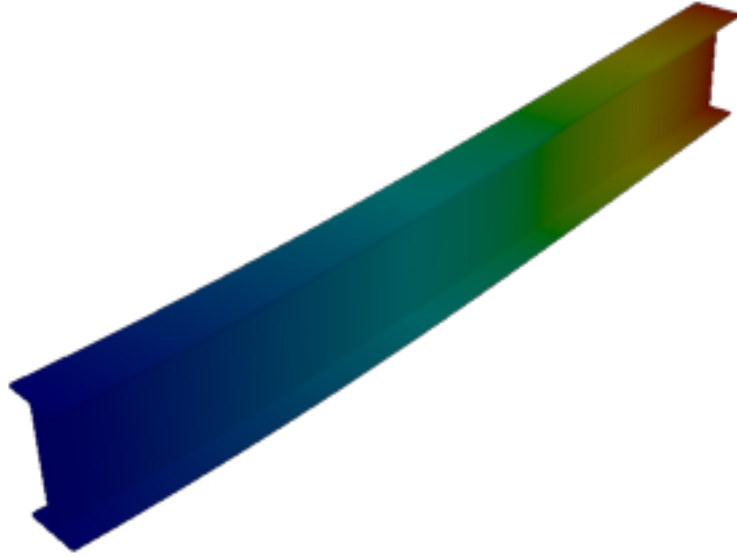


Figure 7: Abaqus — mode 2, 12.928 Hz

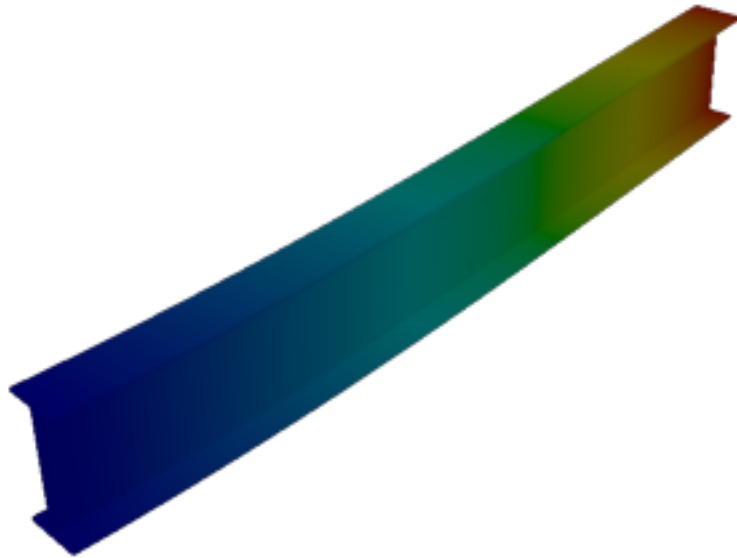


Figure 8: Sesam — mode 2, 12.943 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.928	-0.06	6598.4	6.75e-31	116.57	3.27e-31	-8.21e-16	10.797	-5.72e-16
Sesam	12.943	+0.06	6613.55	4.64e-35	116.71	5.64e-31	6.81e-18	10.803	-7.51e-16

Mode 3

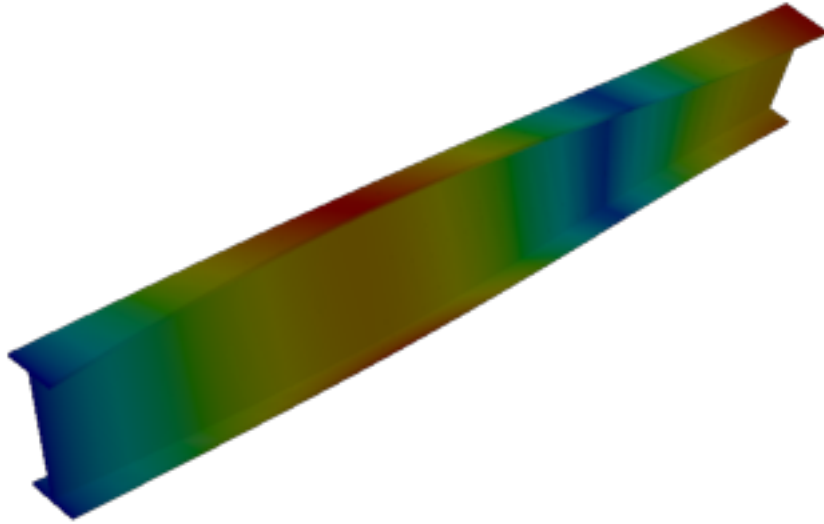


Figure 9: Abaqus — mode 3, 32.342 Hz

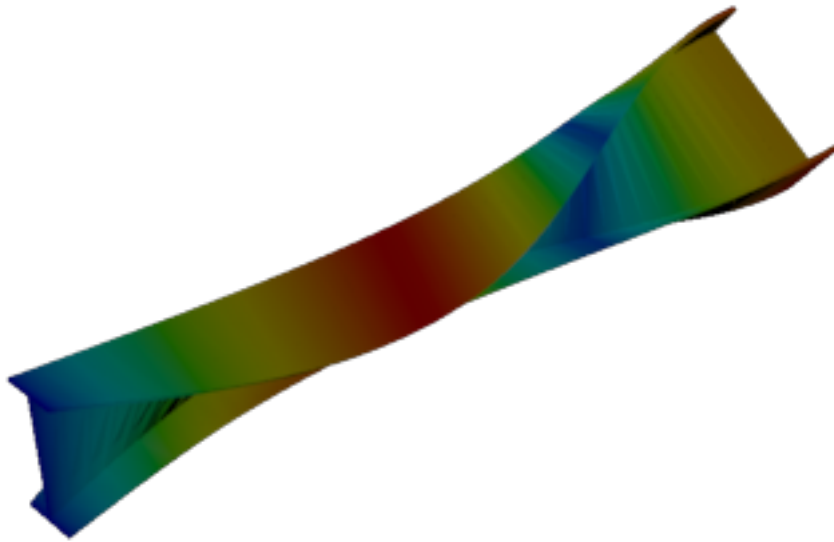


Figure 10: Sesam — mode 3, 36.752 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	32.342	-6.38	41294	7.85e-31	8.23e-32	1.14e-28	8.86e-16	-2.87e-16	1.07e-14
Sesam	36.752	+6.38	53325.3	8.68e-35	1.01e-30	1.52e-32	-9.32e-18	1.00e-15	-1.23e-16

Mode 4

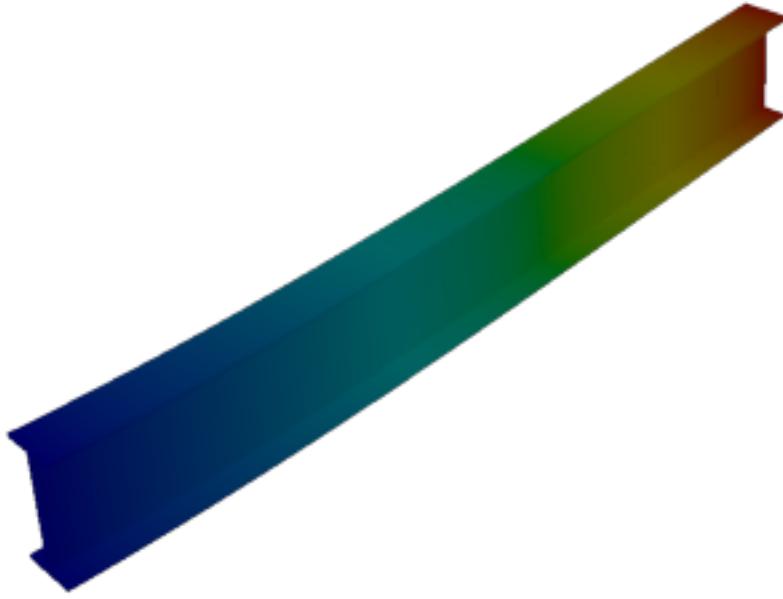


Figure 11: Abaqus — mode 4, 50.543 Hz

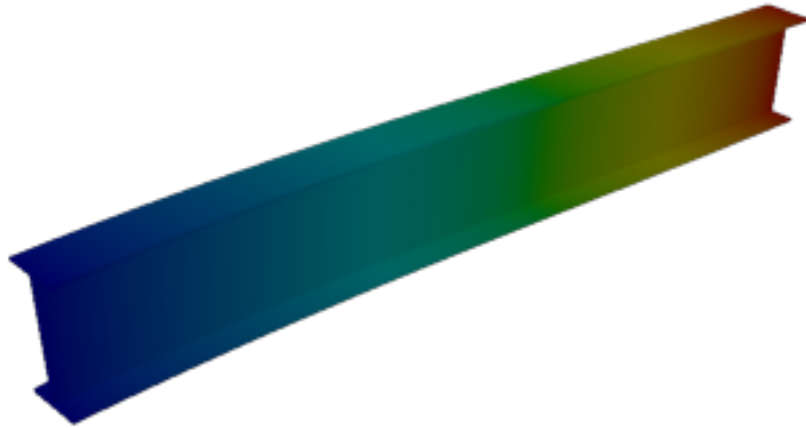


Figure 12: Sesam — mode 4, 44.962 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.543	+5.84	100852	2.51e-30	1.42e-29	118.16	1.58e-15	-3.76e-15	10.870
Sesam	44.962	-5.84	79809.7	3.16e-33	9.04e-30	128.05	-5.62e-17	3.01e-15	-11.316

Mode 5

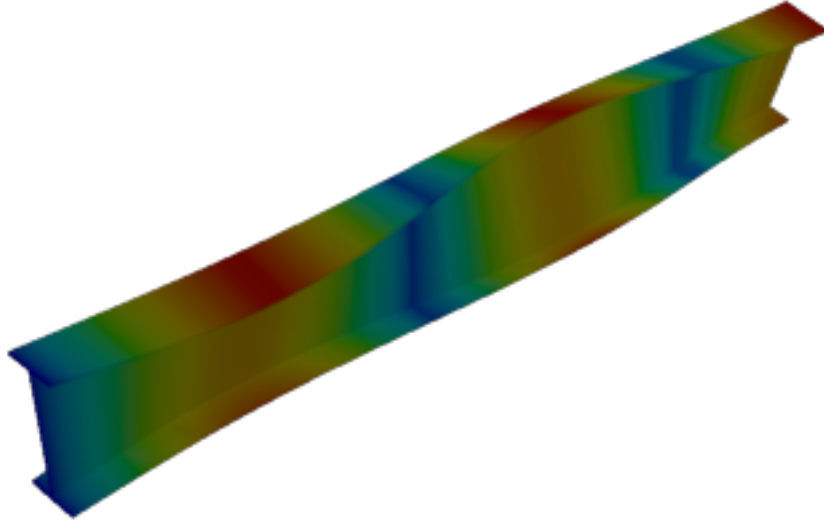


Figure 13: Abaqus — mode 5, 53.855 Hz

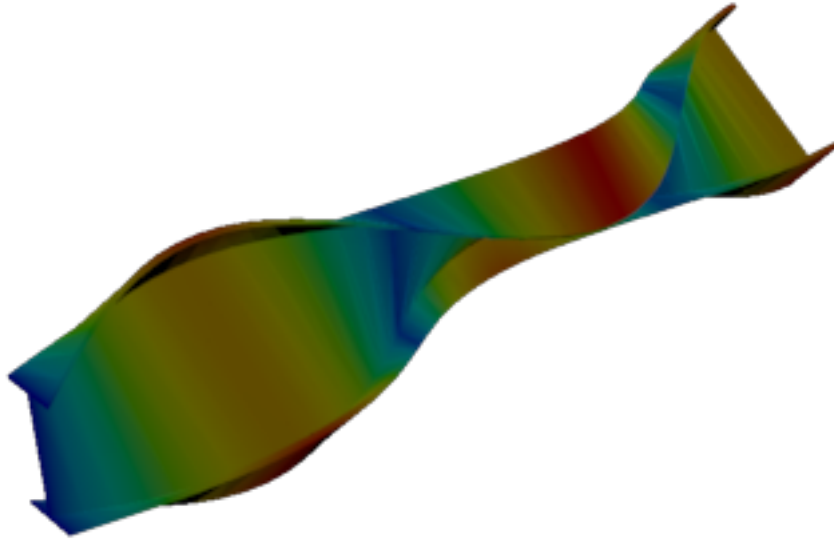


Figure 14: Sesam — mode 5, 61.309 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	53.855	-6.47	114501	1.75e-29	8.90e-30	2.61e-27	-4.18e-15	2.98e-15	5.11e-14
Sesam	61.309	+6.47	148390	3.02e-32	3.54e-30	1.09e-29	-1.74e-16	-1.88e-15	3.30e-15

Mode 6

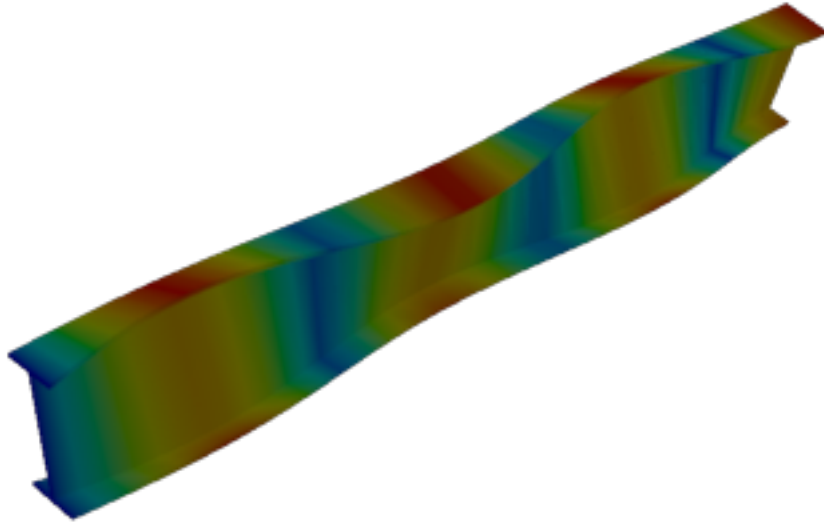


Figure 15: Abaqus — mode 6, 75.296 Hz

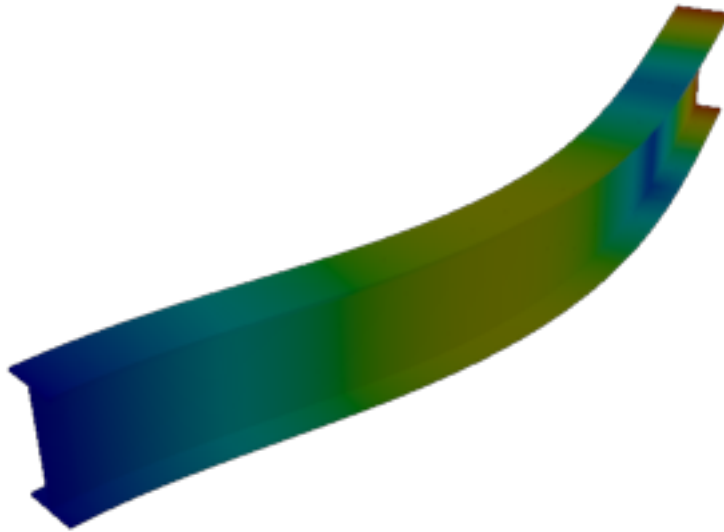


Figure 16: Sesam — mode 6, 79.793 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.296	-2.90	223823	3.82e-29	2.17e-28	3.67e-28	-6.18e-15	-1.47e-14	1.92e-14
Sesam	79.793	+2.90	251356	8.03e-33	36.29	4.50e-29	-8.96e-17	-6.024	-6.71e-15

Mode 7

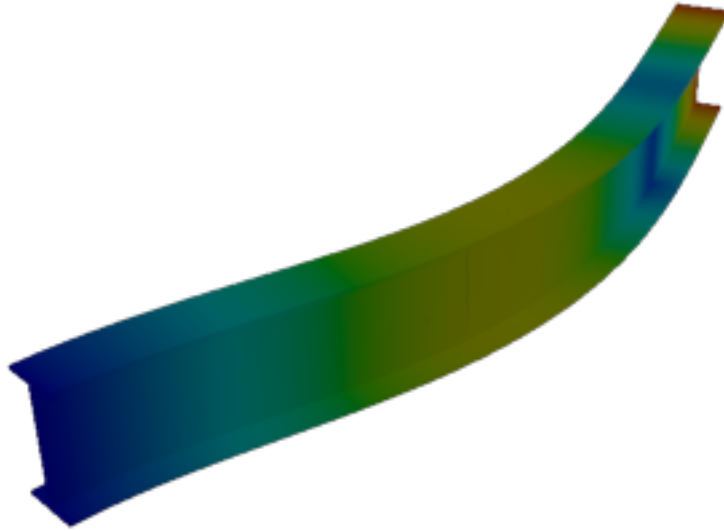


Figure 17: Abaqus — mode 7, 79.590 Hz

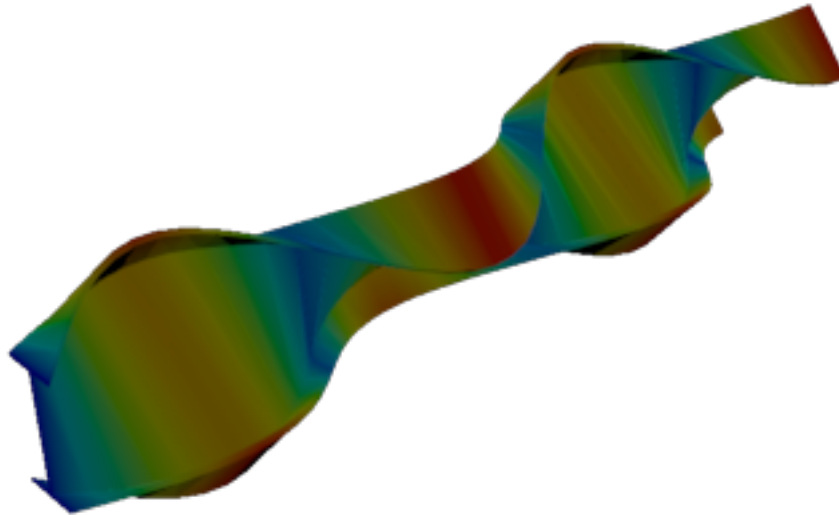


Figure 18: Sesam — mode 7, 85.947 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	79.590	-3.84	250078	1.01e-30	36.20	1.38e-29	1.01e-15	-6.016	-3.72e-15
Sesam	85.947	+3.84	291620	1.09e-31	9.28e-29	2.34e-30	-3.31e-16	-9.63e-15	-1.53e-15

Mode 8

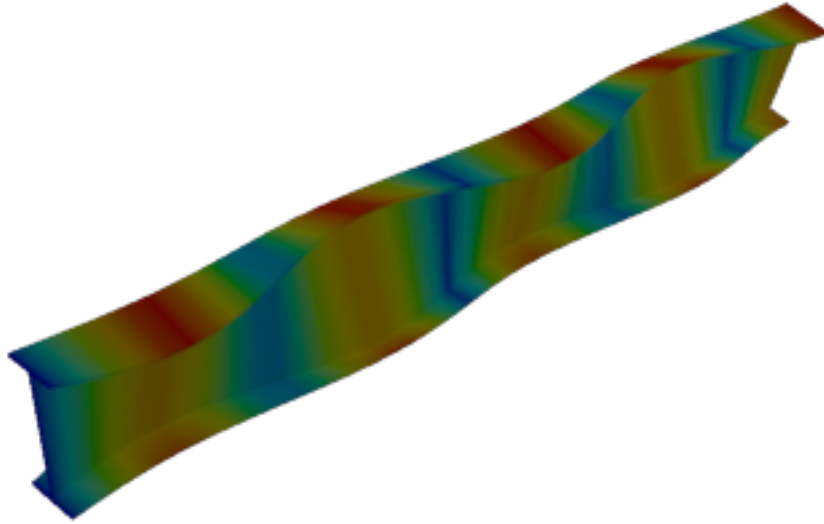


Figure 19: Abaqus — mode 8, 96.637 Hz

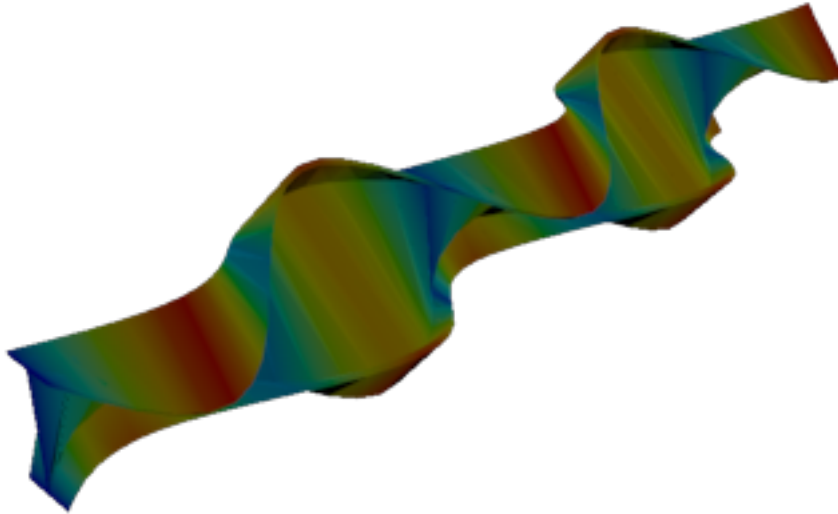


Figure 20: Sesam — mode 8, 110.699 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	96.637	-6.78	368677	4.04e-26	1.03e-27	4.21e-27	-2.01e-13	-3.20e-14	6.49e-14
Sesam	110.699	+6.78	483782	2.49e-33	6.18e-30	2.43e-29	4.99e-17	2.49e-15	-4.93e-15

Mode 9

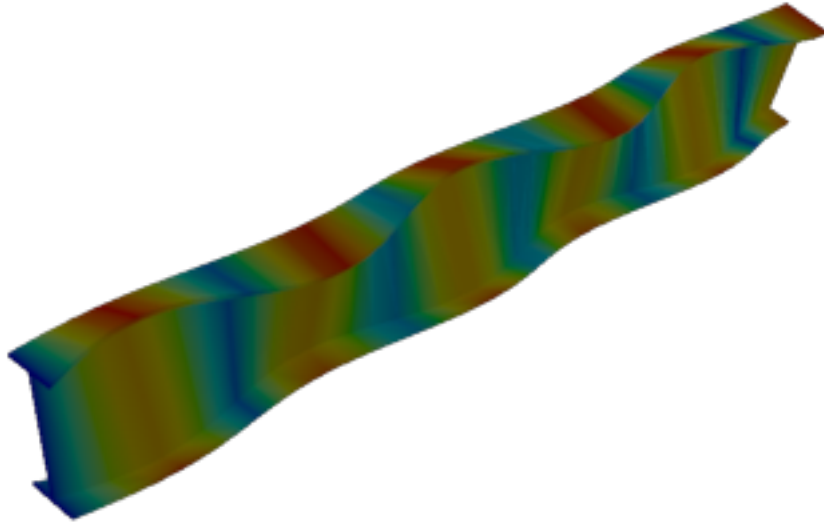


Figure 21: Abaqus — mode 9, 117.849 Hz

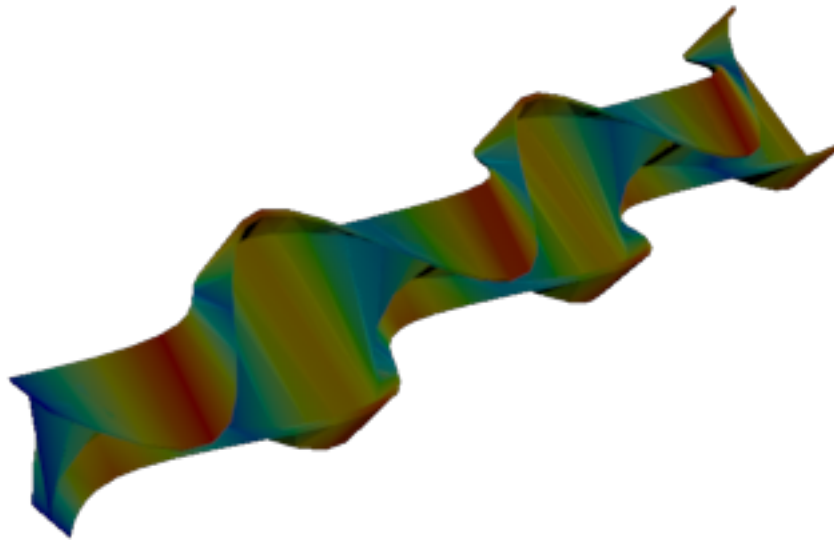


Figure 22: Sesam — mode 9, 135.600 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	117.850	-7.00	548290	9.24e-23	1.72e-25	7.37e-24	9.61e-12	4.15e-13	2.71e-12
Sesam	135.600	+7.00	725900	3.52e-30	2.31e-30	4.44e-29	-1.88e-15	1.52e-15	-6.66e-15

Mode 10

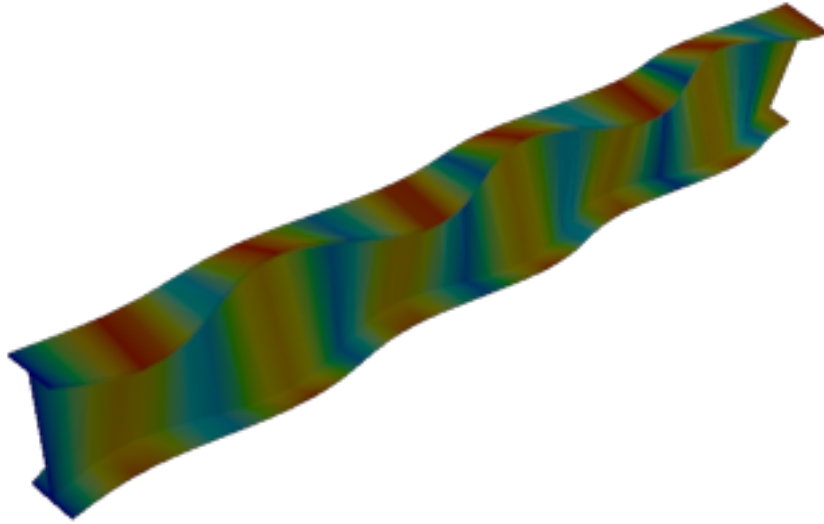


Figure 23: Abaqus — mode 10, 138.904 Hz

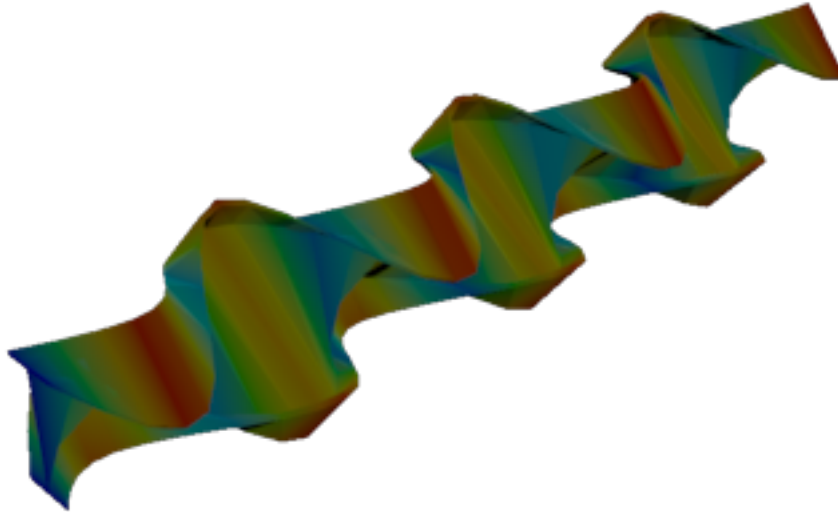


Figure 24: Sesam — mode 10, 160.681 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	138.900	-7.27	761704	1.00e-20	2.09e-22	2.61e-21	1.00e-10	1.45e-11	-5.11e-11
Sesam	160.681	+7.27	1.01927e+06	6.22e-23	1.67e-23	7.04e-23	-7.88e-12	4.09e-12	-8.39e-12

Mode 11

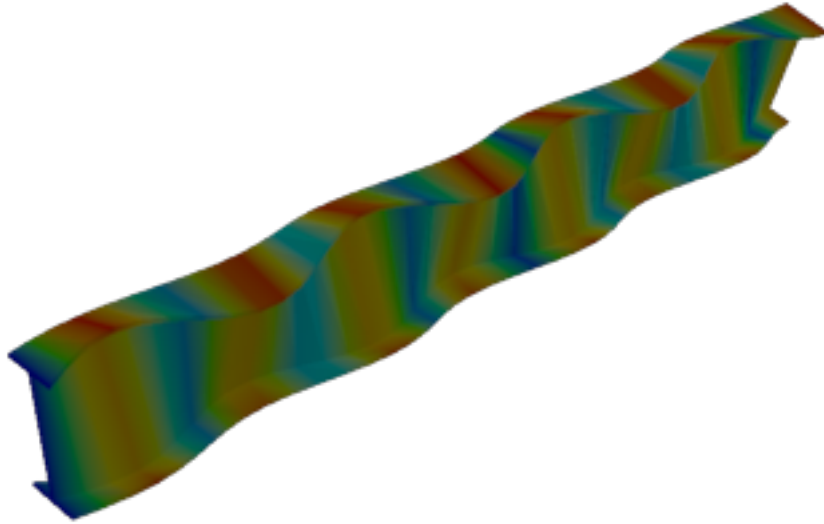


Figure 25: Abaqus — mode 11, 159.773 Hz

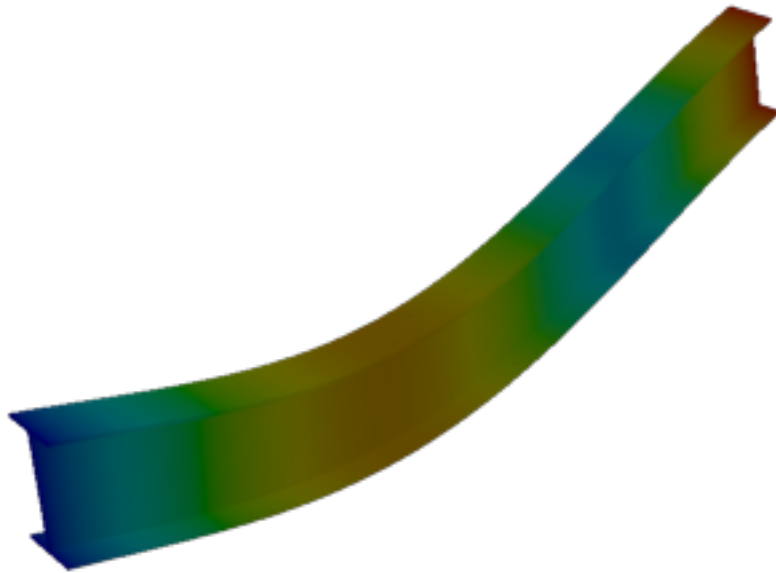


Figure 26: Sesam — mode 11, 176.495 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	159.770	-4.97	1.00778e+06	1.05e-18	1.96e-22	2.87e-21	1.02e-09	-1.40e-11	5.35e-11
Sesam	176.495	+4.97	1.22977e+06	3.95e-21	1.04e-21	38.35	-6.28e-11	3.22e-11	-6.193

Line, 2nd order

Mode 1

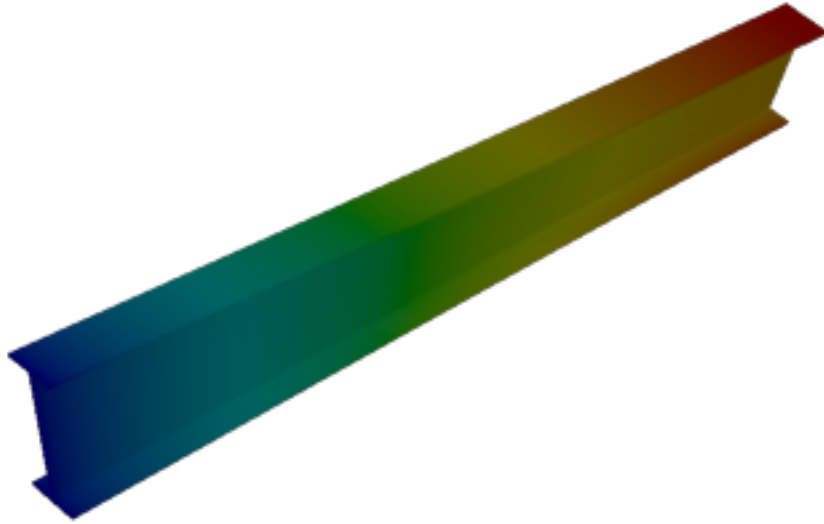


Figure 27: Abaqus — mode 1, 10.786 Hz

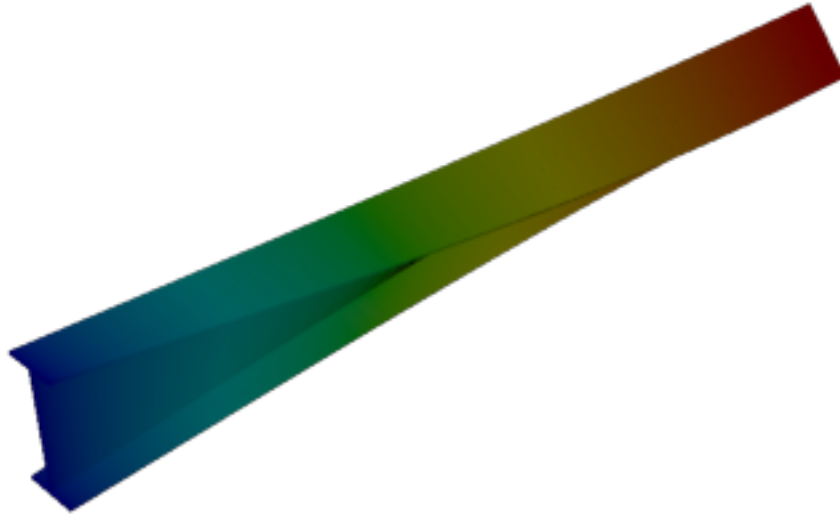


Figure 28: Sesam — mode 1, 10.039 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	10.786	+3.59	4592.8	3.02e-31	1.31e-30	3.09e-30	5.50e-16	1.14e-15	-1.76e-15
Sesam	10.039	-3.59	3978.68	5.26e-40	1.31e-27	4.46e-29	2.29e-20	3.62e-14	-6.68e-15

Mode 2

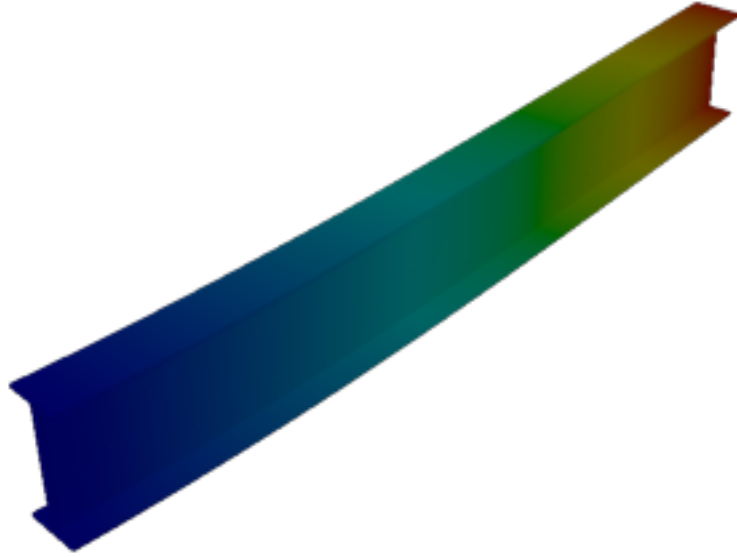


Figure 29: Abaqus — mode 2, 12.932 Hz

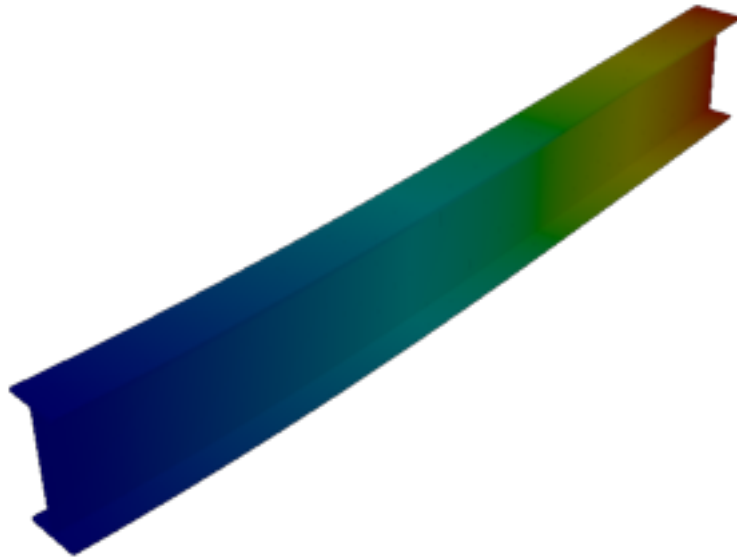


Figure 30: Sesam — mode 2, 10.614 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.932	+9.84	6602.4	1.50e-32	116.59	2.60e-32	-1.22e-16	10.798	-1.61e-16
Sesam	10.614	-9.84	4447.85	3.31e-28	176.82	7.82e-31	-1.82e-14	13.297	8.84e-16

Mode 3

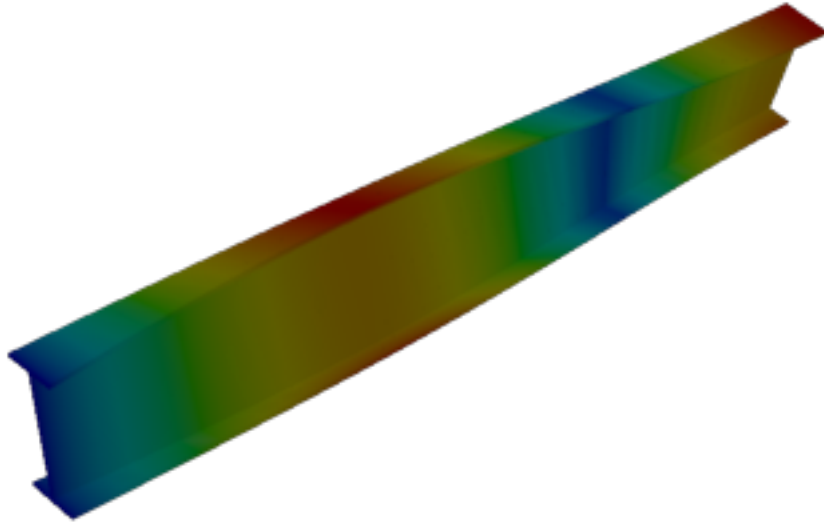


Figure 31: Abaqus — mode 3, 32.358 Hz

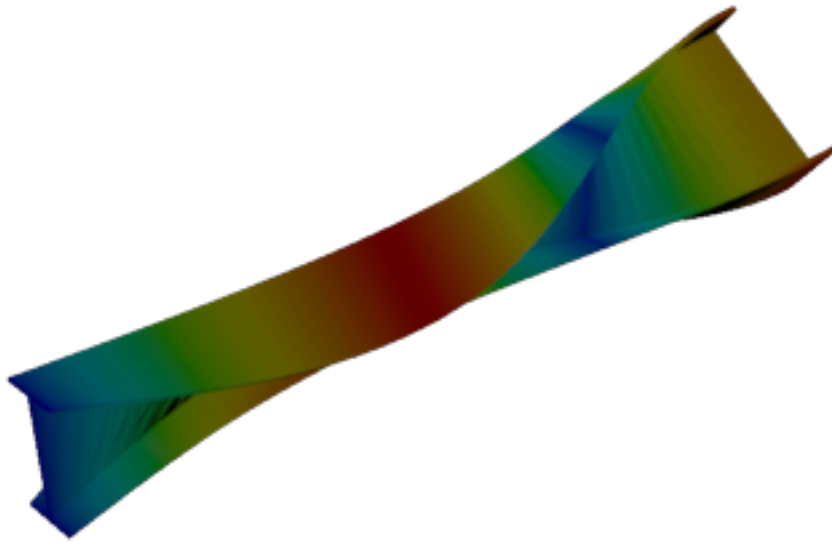


Figure 32: Sesam — mode 3, 30.108 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	32.358	+3.60	41335	2.64e-31	5.69e-29	8.91e-29	5.14e-16	-7.54e-15	-9.44e-15
Sesam	30.108	-3.60	35786.3	4.57e-37	6.51e-30	2.81e-29	6.76e-19	2.55e-15	-5.30e-15

Mode 4

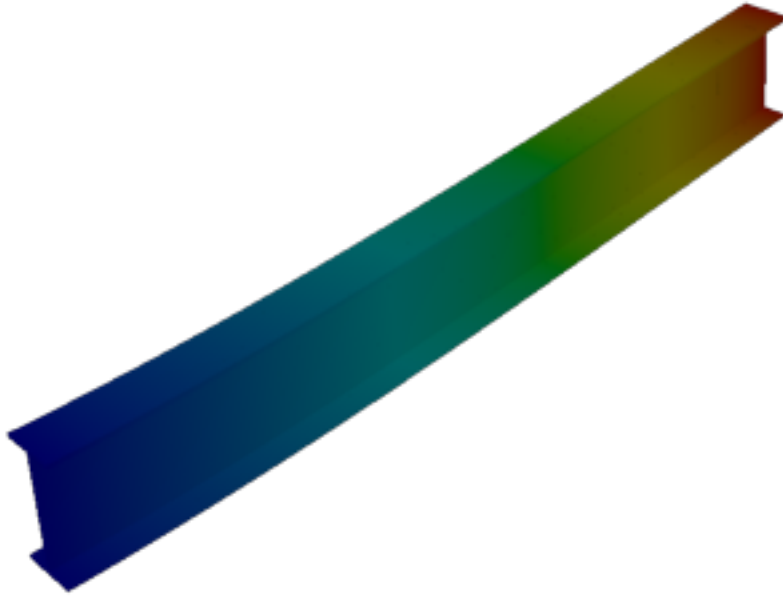


Figure 33: Abaqus — mode 4, 50.557 Hz

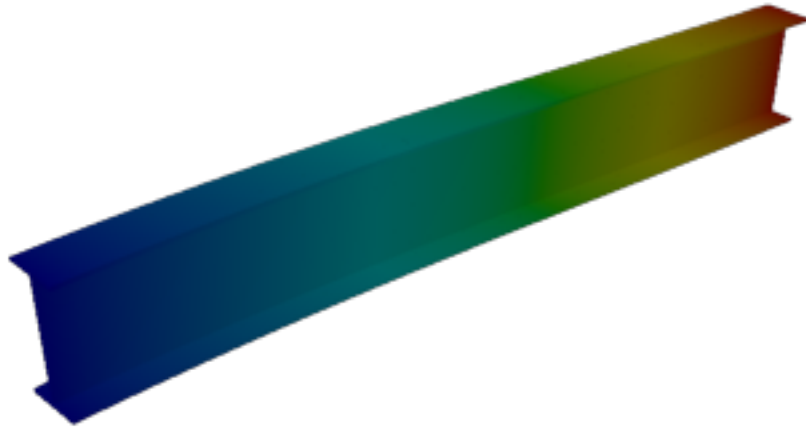


Figure 34: Sesam — mode 4, 36.752 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.557	+15.81	100907	6.29e-36	9.63e-28	118.18	-2.51e-18	-3.10e-14	10.871
Sesam	36.752	-15.81	53323.9	3.71e-28	2.58e-29	192.77	1.93e-14	5.08e-15	-13.884

Mode 5

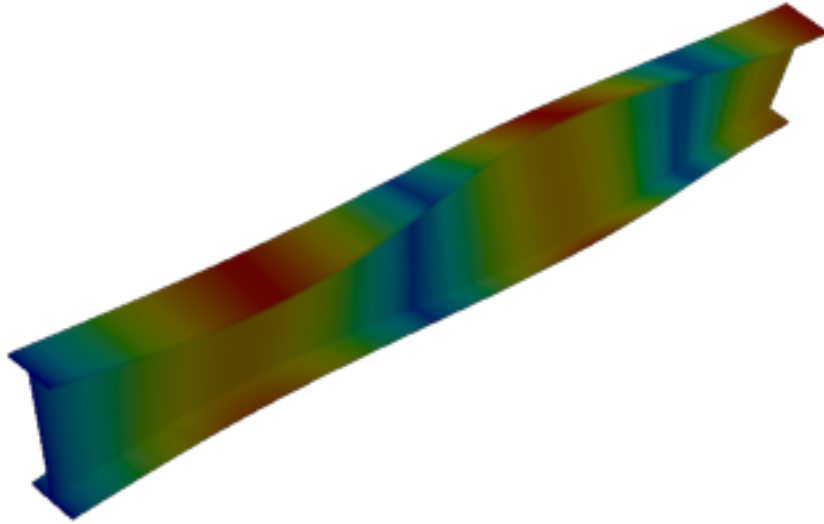


Figure 35: Abaqus — mode 5, 53.930 Hz

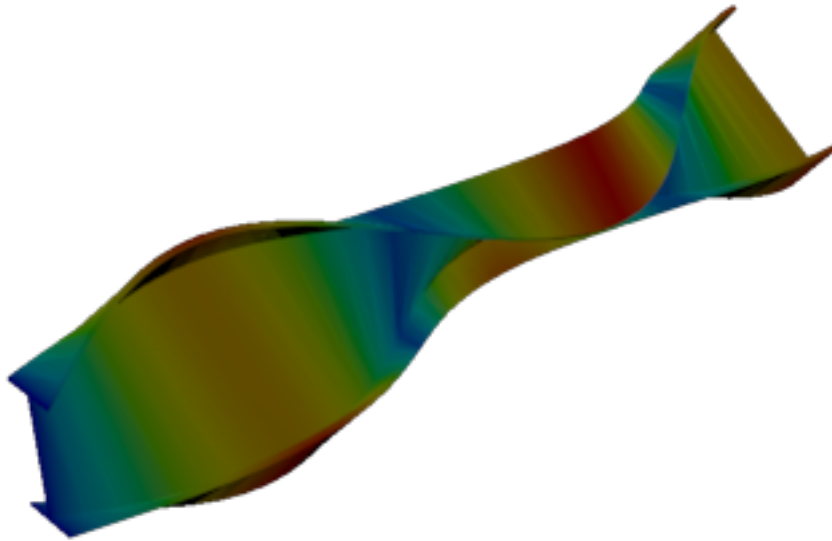


Figure 36: Sesam — mode 5, 50.149 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	53.930	+3.63	114820	1.13e-29	6.97e-31	2.94e-28	-3.36e-15	8.35e-16	1.72e-14
Sesam	50.149	-3.63	99284.4	1.91e-35	1.10e-30	4.31e-29	-4.37e-18	-1.05e-15	-6.57e-15

Mode 6

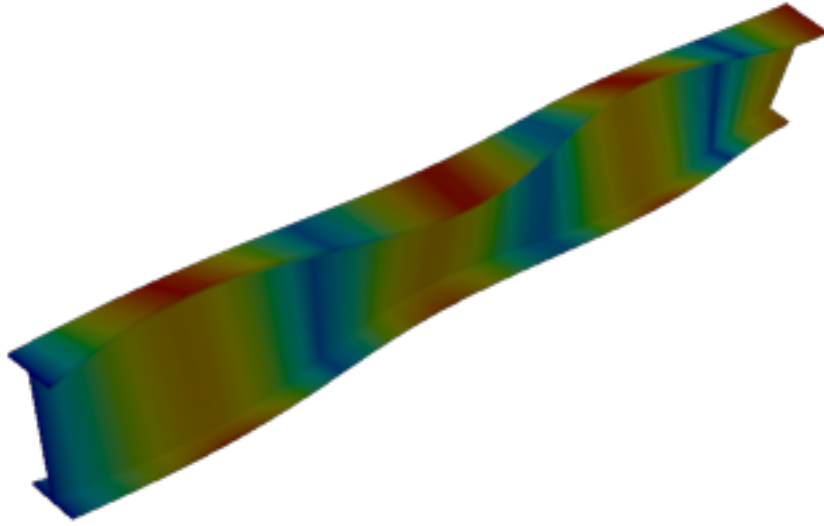


Figure 37: Abaqus — mode 6, 75.502 Hz

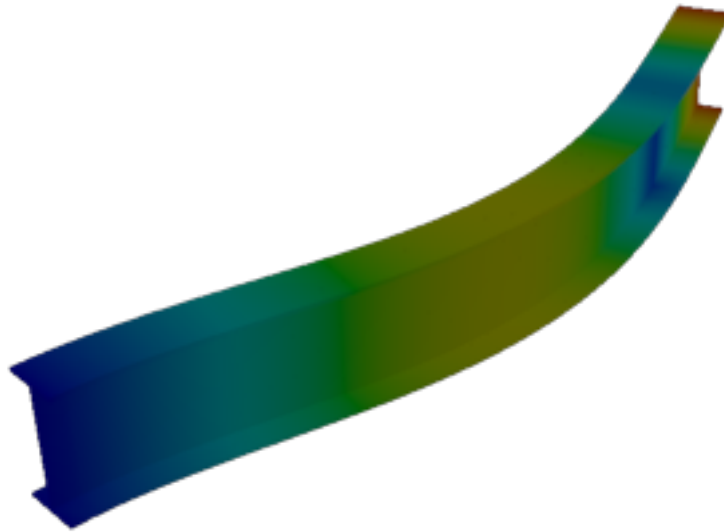


Figure 38: Sesam — mode 6, 65.327 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.502	+7.23	225048	6.44e-34	3.07e-27	1.85e-29	-2.54e-17	5.54e-14	-4.30e-15
Sesam	65.327	-7.23	168476	1.08e-28	54.95	1.07e-28	1.04e-14	-7.413	-1.03e-14

Mode 7

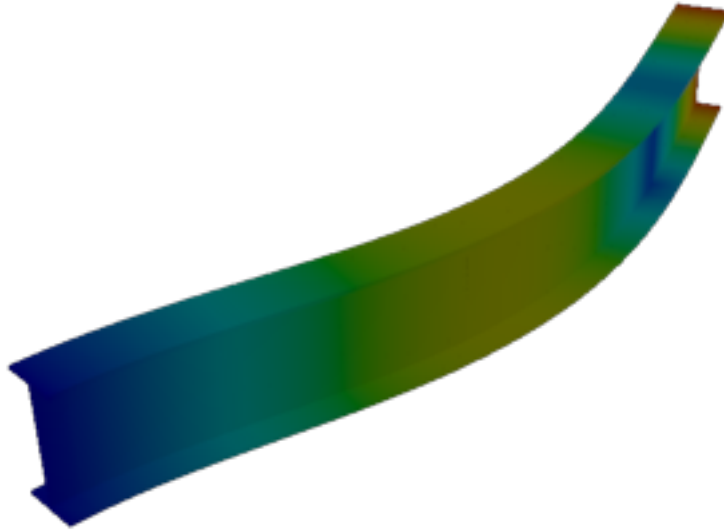


Figure 39: Abaqus — mode 7, 79.684 Hz

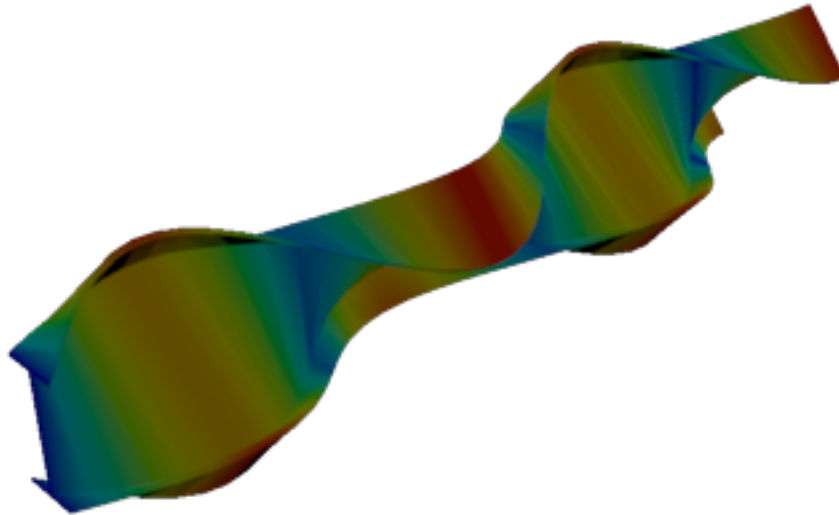


Figure 40: Sesam — mode 7, 70.143 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	79.684	+6.37	250668	9.57e-31	36.19	1.97e-27	9.78e-16	-6.015	-4.44e-14
Sesam	70.143	-6.37	194235	7.33e-35	4.66e-28	4.83e-30	-8.56e-18	2.16e-14	2.20e-15

Mode 8

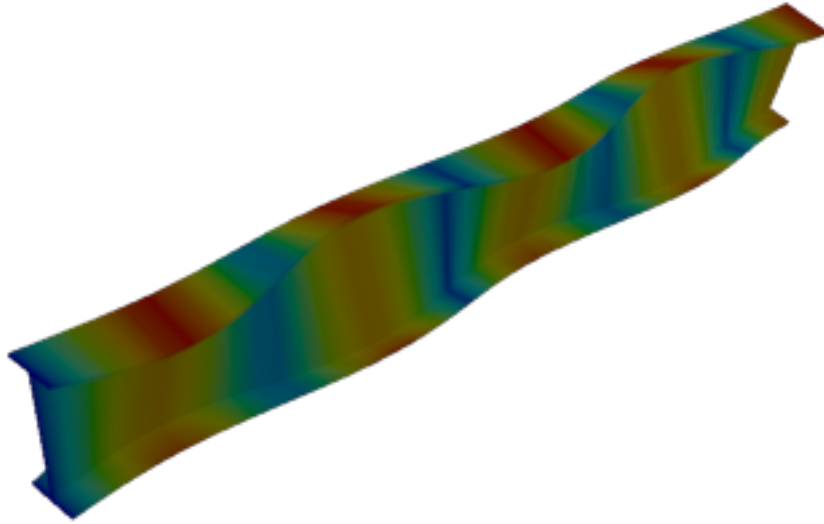


Figure 41: Abaqus — mode 8, 97.074 Hz

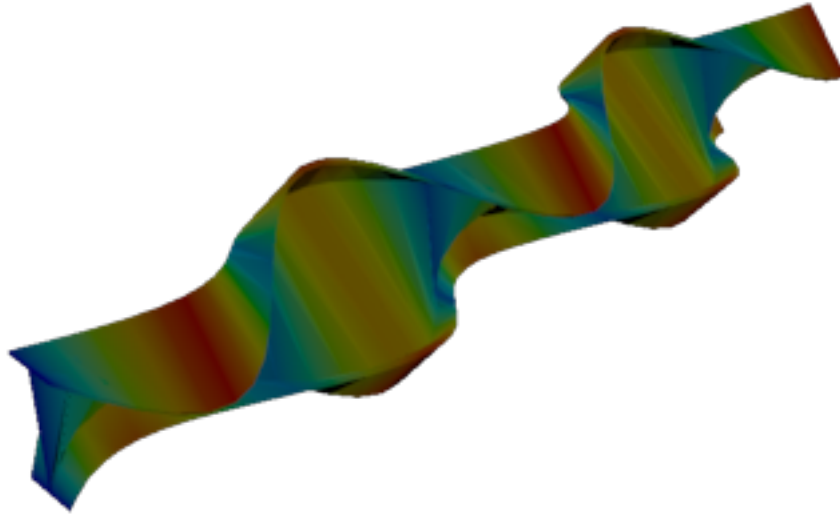


Figure 42: Sesam — mode 8, 90.070 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	97.074	+3.74	372022	4.46e-28	1.86e-30	1.09e-27	2.11e-14	1.36e-15	-3.31e-14
Sesam	90.070	-3.74	320270	1.65e-33	4.85e-29	3.89e-29	-4.06e-17	6.96e-15	6.24e-15

Mode 9

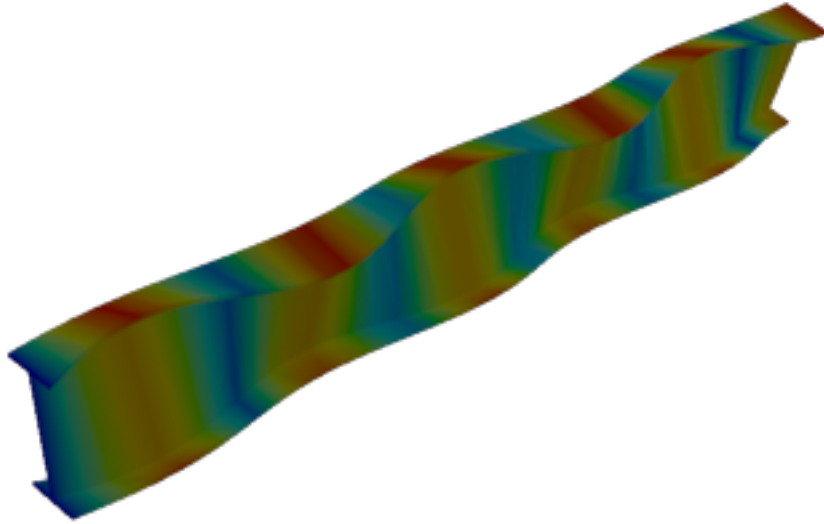


Figure 43: Abaqus — mode 9, 118.648 Hz

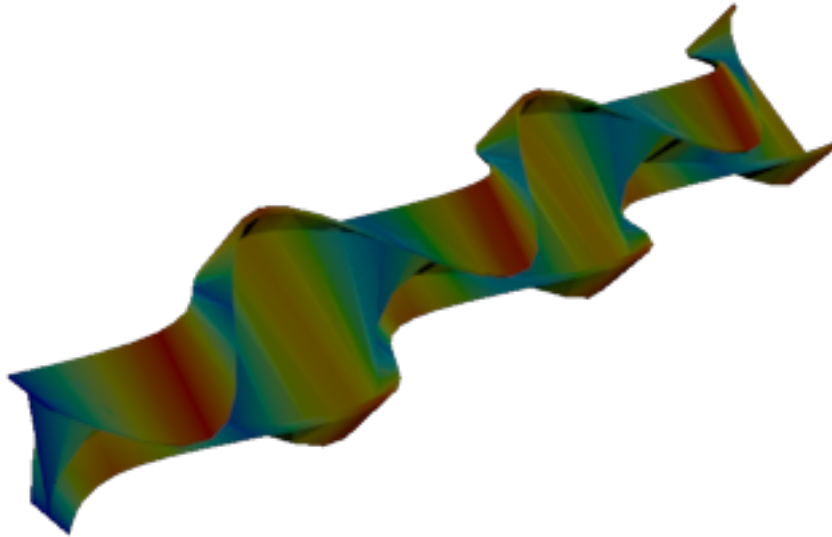


Figure 44: Sesam — mode 9, 109.907 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	118.650	+3.83	555748	3.94e-25	6.15e-26	2.26e-25	6.28e-13	2.48e-13	-4.75e-13
Sesam	109.907	-3.83	476881	3.54e-29	2.19e-32	8.17e-29	5.95e-15	-1.48e-16	-9.04e-15

Mode 10

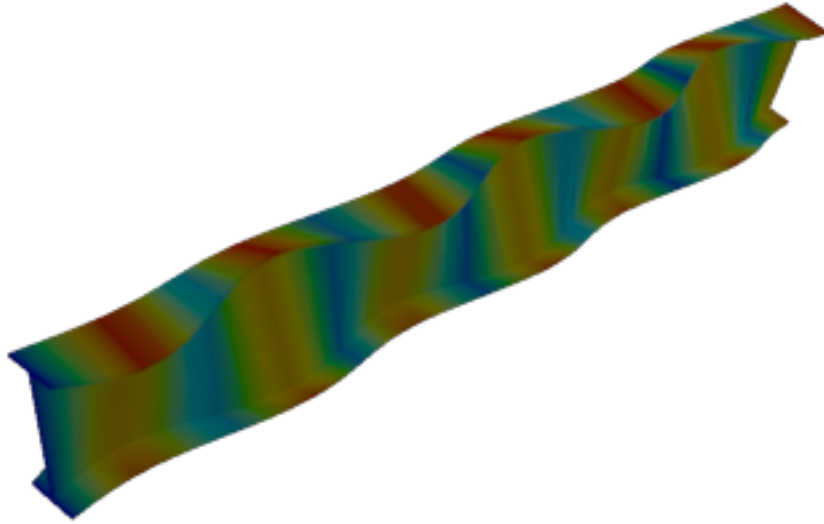


Figure 45: Abaqus — mode 10, 140.222 Hz

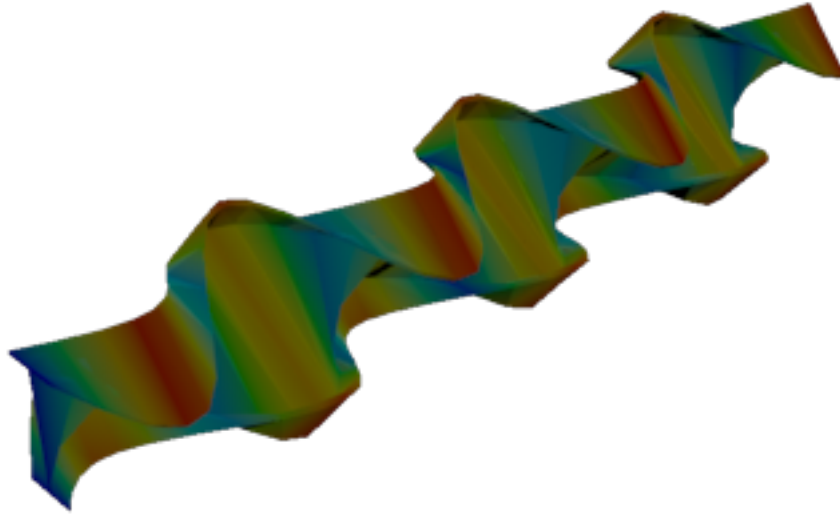


Figure 46: Sesam — mode 10, 129.631 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	140.220	+3.92	776236	2.58e-24	4.27e-23	1.99e-23	-1.61e-12	6.54e-12	4.46e-12
Sesam	129.631	-3.92	663407	8.02e-21	1.12e-21	1.11e-21	8.95e-11	3.35e-11	-3.34e-11

Mode 11

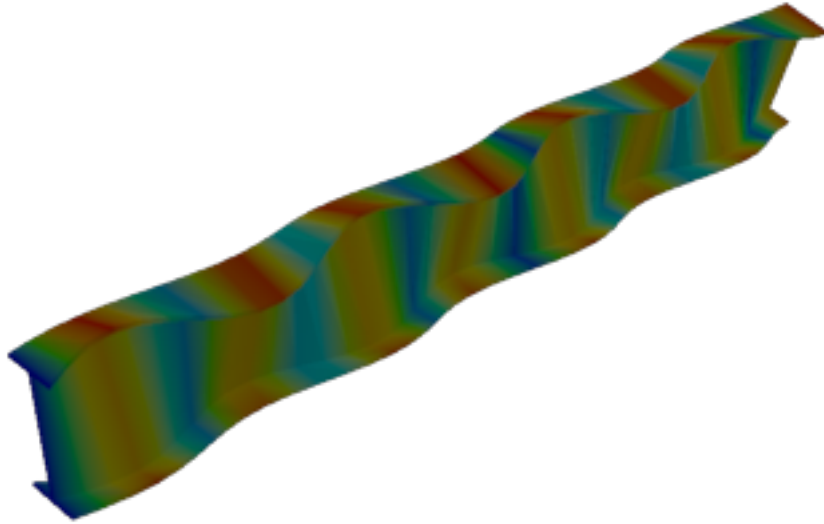


Figure 47: Abaqus — mode 11, 161.799 Hz

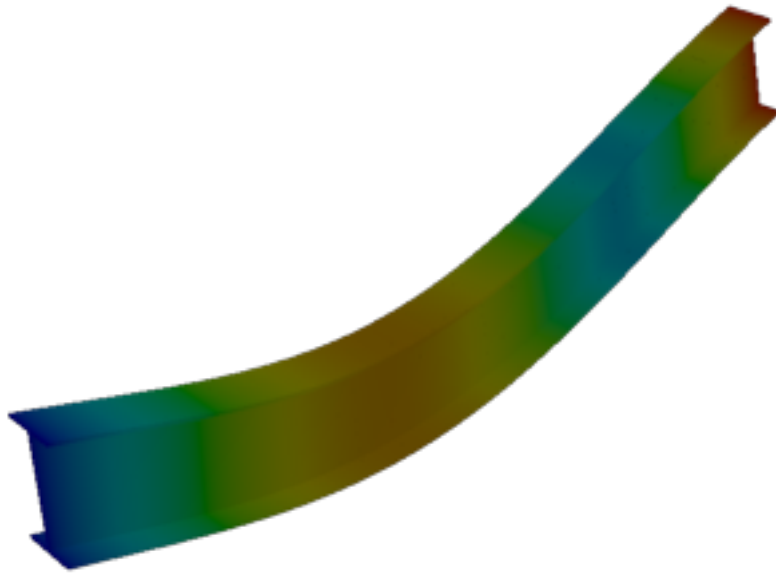


Figure 48: Sesam — mode 11, 142.572 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	161.800	+6.32	1.03351e+06	2.30e-19	1.18e-19	3.67e-20	-4.80e-10	-3.43e-10	1.92e-10
Sesam	142.572	-6.32	802475	5.07e-20	7.21e-21	59.58	2.25e-10	8.49e-11	-7.719

Shell, 1st order, TRI

Mode 1

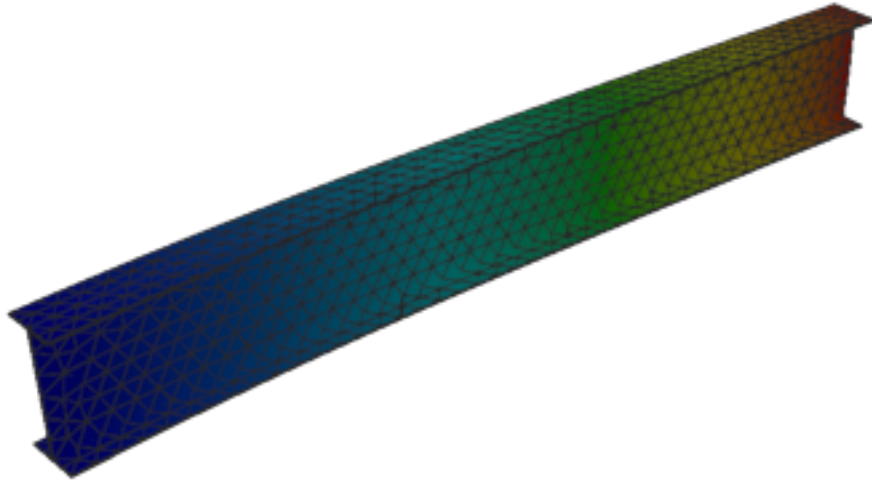


Figure 49: Sesam — mode 1, 13.641 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	13.641	7346.4	2.57e-27	119.93	7.93e-25	-5.07e-14	-10.951	-8.90e-13

Mode 2

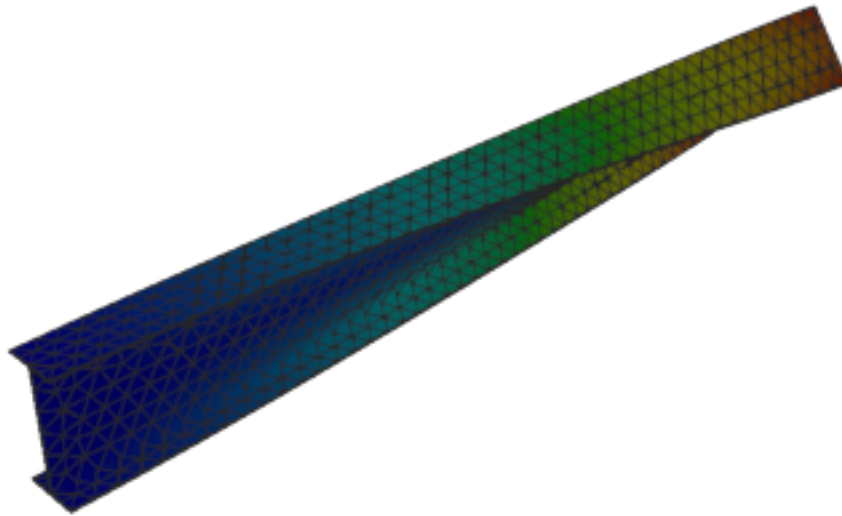


Figure 50: Sesam — mode 2, 20.198 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	20.198	16106.1	1.92e-26	3.02e-11	1.82e-25	1.38e-13	-5.49e-06	4.26e-13

Mode 3

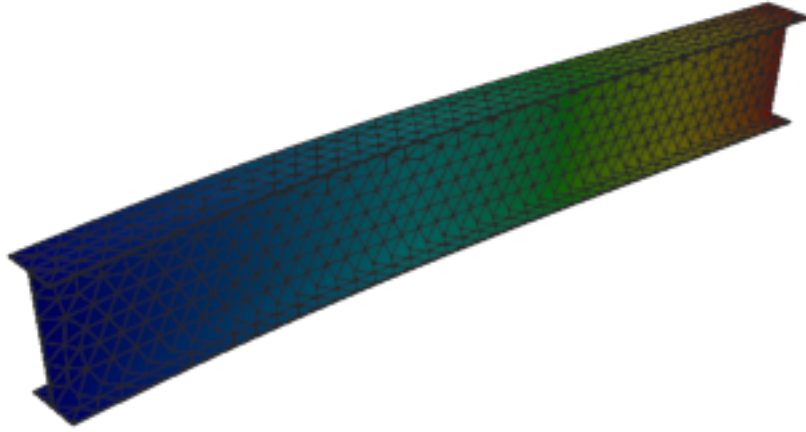


Figure 51: Sesam — mode 3, 52.192 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	52.192	107540	4.79e-10	1.24e-24	122.03	-2.19e-05	1.12e-12	-11.047

Mode 4

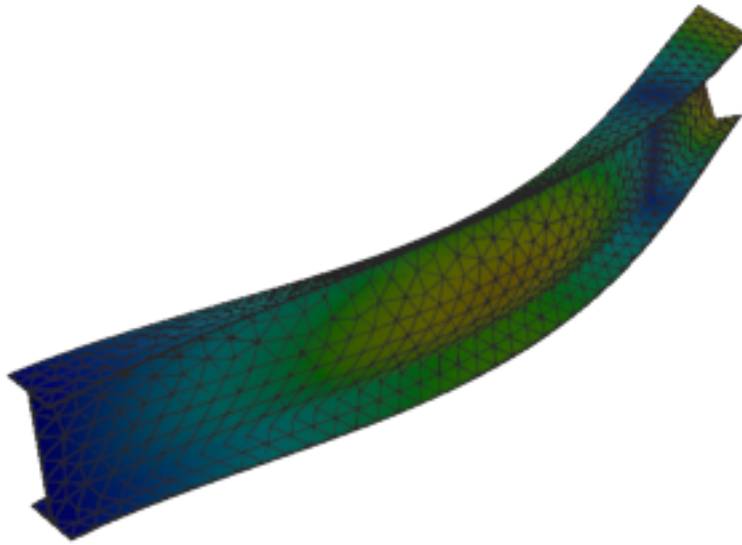


Figure 52: Sesam — mode 4, 79.523 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	79.523	249655	1.26e-27	36.58	1.11e-25	3.55e-14	-6.048	-3.33e-13

Mode 5

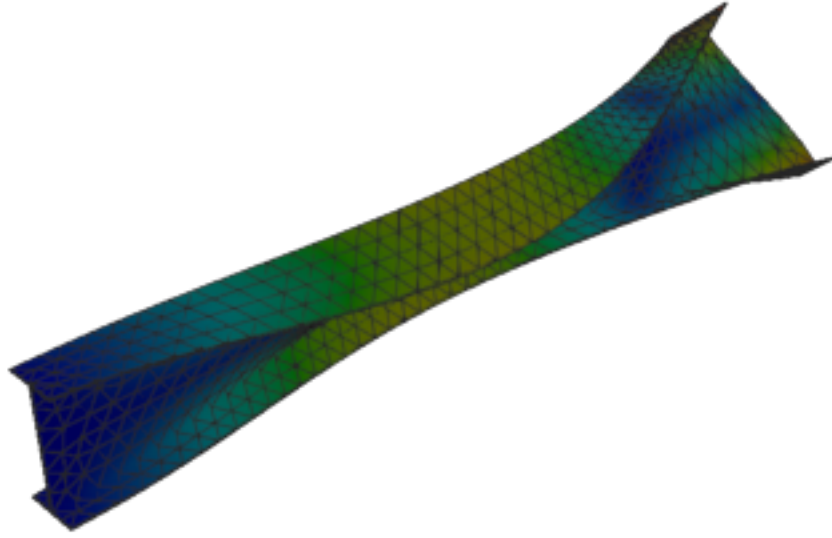


Figure 53: Sesam — mode 5, 101.756 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	101.756	408770	3.14e-27	4.27e-09	1.42e-27	-5.60e-14	6.54e-05	-3.77e-14

Mode 6

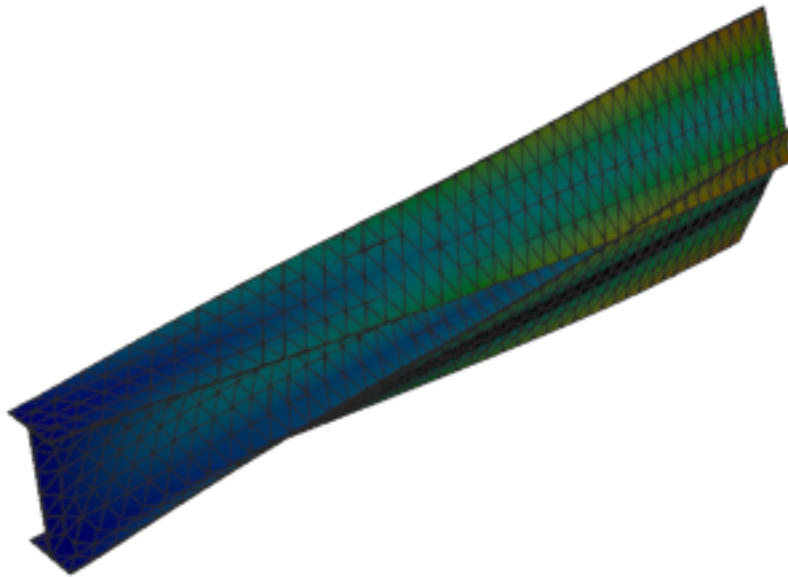


Figure 54: Sesam — mode 6, 125.093 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	125.093	617772	5.83e-28	0.06	2.58e-27	-2.41e-14	-0.252	5.08e-14

Mode 7

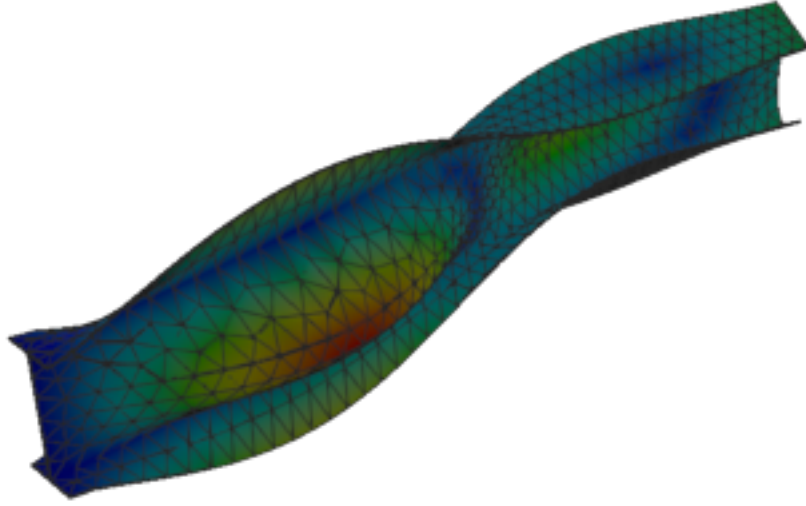


Figure 55: Sesam — mode 7, 143.164 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	143.164	809150	1.19e-28	2.72	6.22e-28	-1.09e-14	-1.651	2.49e-14

Mode 8

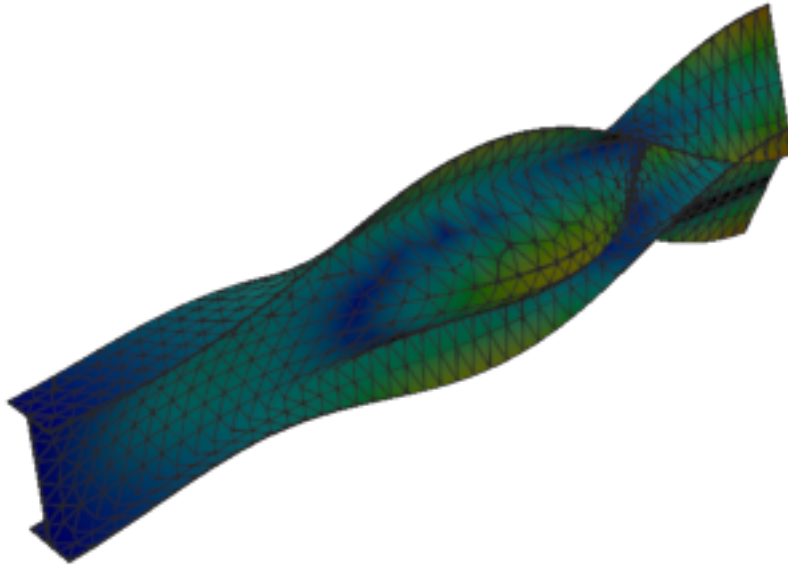


Figure 56: Sesam — mode 8, 166.668 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	166.668	1.09664e+06	1.64e-27	5.94	3.89e-27	-4.05e-14	2.438	-6.23e-14

Mode 9

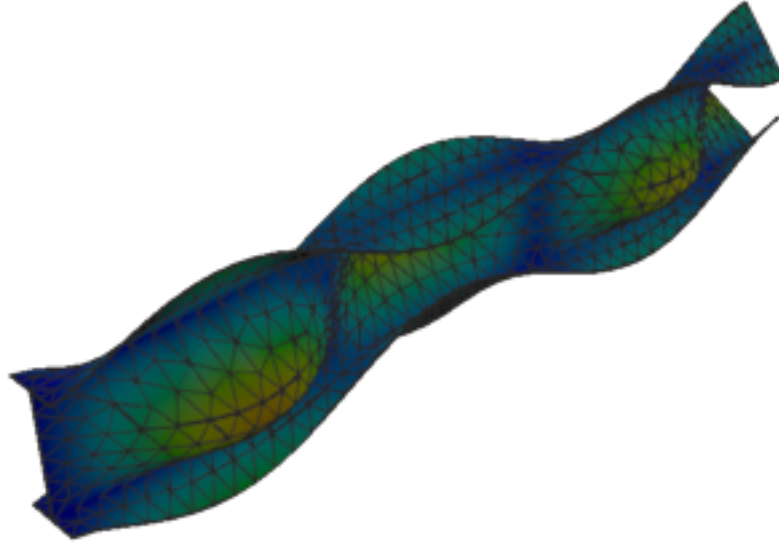


Figure 57: Sesam — mode 9, 191.533 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	191.533	1.44826e+06	2.66e-28	0.61	7.55e-28	-1.63e-14	-0.781	-2.75e-14

Mode 10

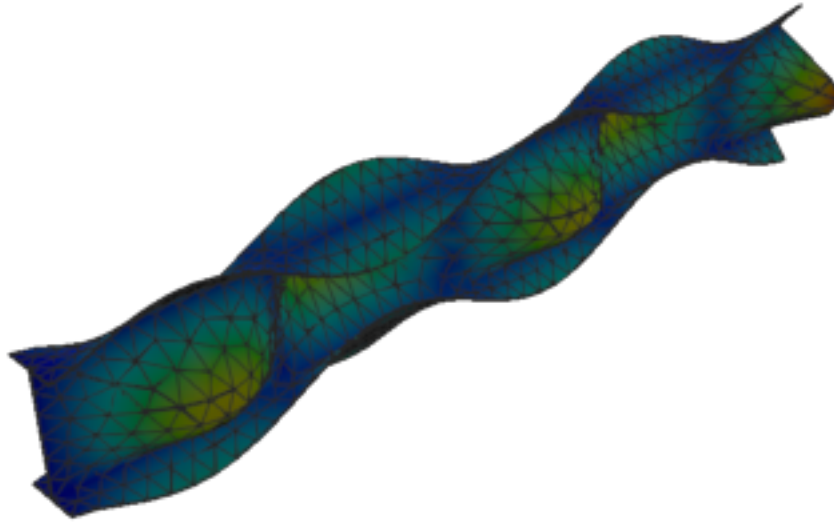


Figure 58: Sesam — mode 10, 230.489 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	230.489	2.09731e+06	2.70e-28	1.27	2.42e-28	1.64e-14	-1.128	-1.55e-14

Mode 11

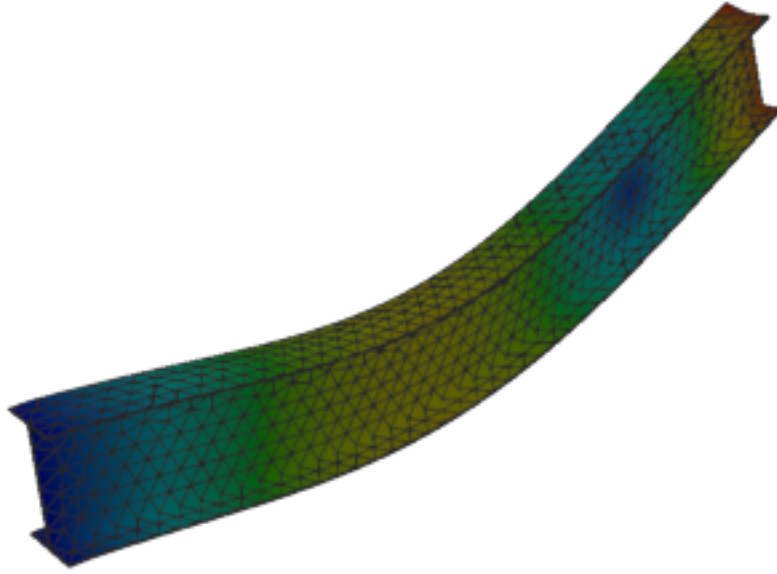


Figure 59: Sesam — mode 11, 257.362 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Sesam	257.362	2.61487e+06	6.51e-09	3.57e-22	41.62	-8.07e-05	-1.89e-11	-6.451

Shell, 1st order, QUAD

Mode 1

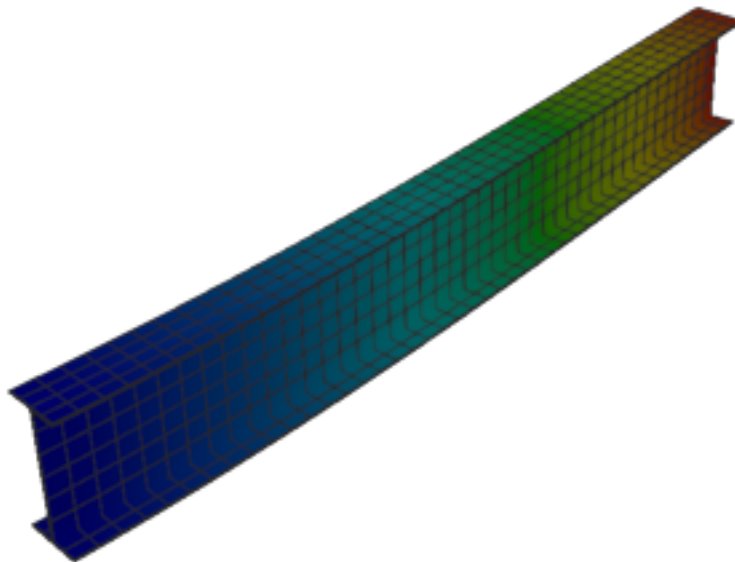


Figure 60: Abaqus — mode 1, 12.780 Hz

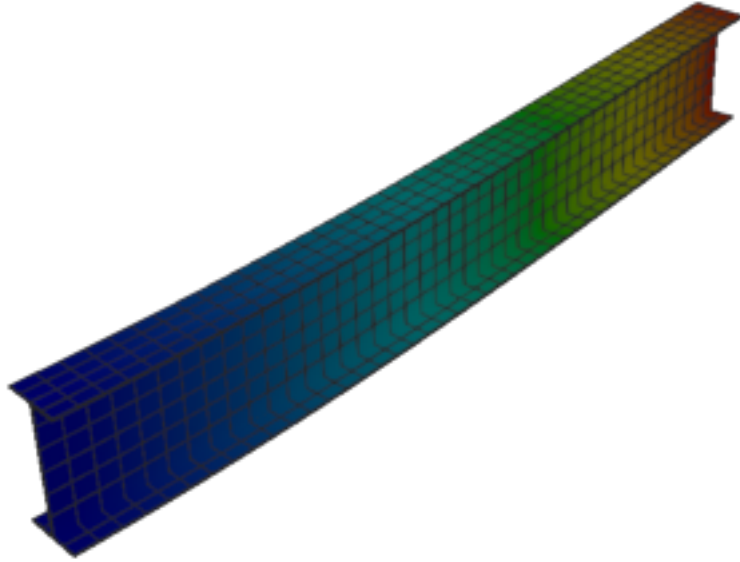


Figure 61: Sesam — mode 1, 12.763 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.780	+0.07	6448.4	7.41e-27	119.92	1.38e-25	-8.61e-14	10.951	-3.71e-13
Sesam	12.763	-0.07	6430.64	1.47e-28	119.90	2.22e-25	-1.21e-14	10.950	-4.71e-13

Mode 2

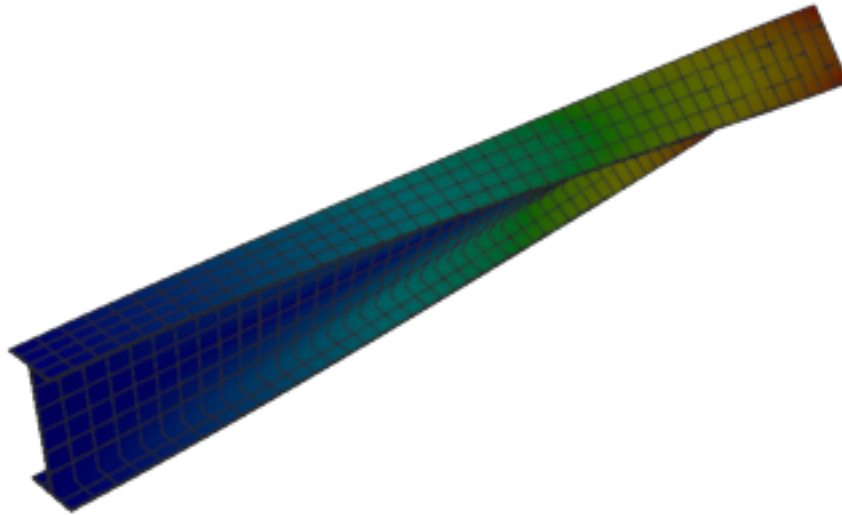


Figure 62: Abaqus — mode 2, 19.593 Hz

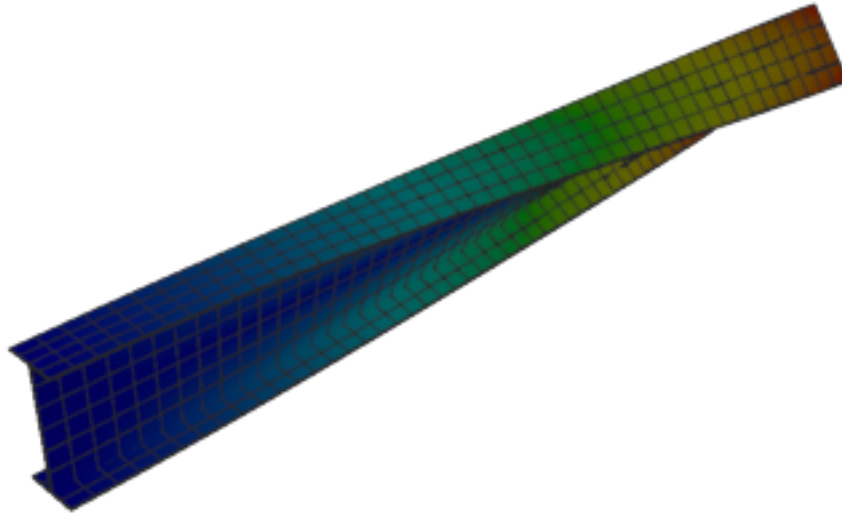


Figure 63: Sesam — mode 2, 19.394 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	19.593	+0.51	15155	1.46e-27	1.08e-19	7.67e-28	-3.83e-14	3.28e-10	2.77e-14
Sesam	19.394	-0.51	14849.3	3.80e-27	7.43e-19	1.60e-24	-6.16e-14	-8.62e-10	-1.27e-12

Mode 3

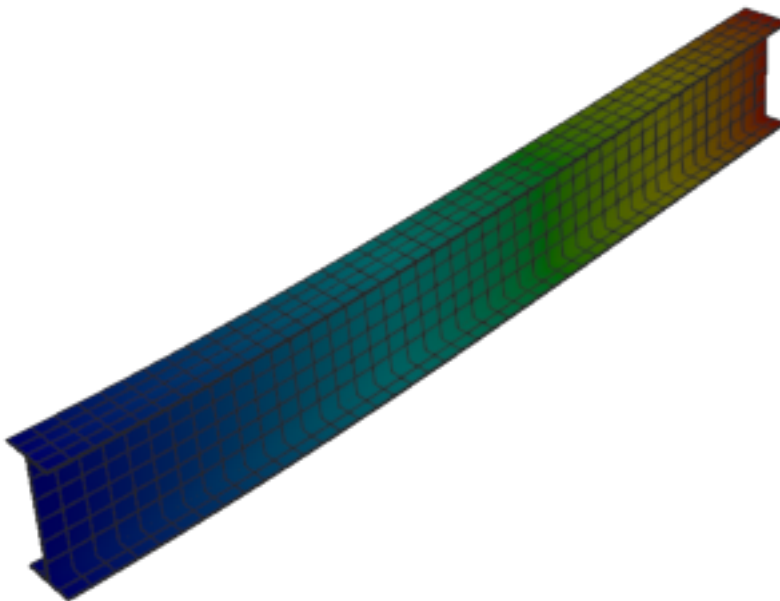


Figure 64: Abaqus — mode 3, 51.998 Hz

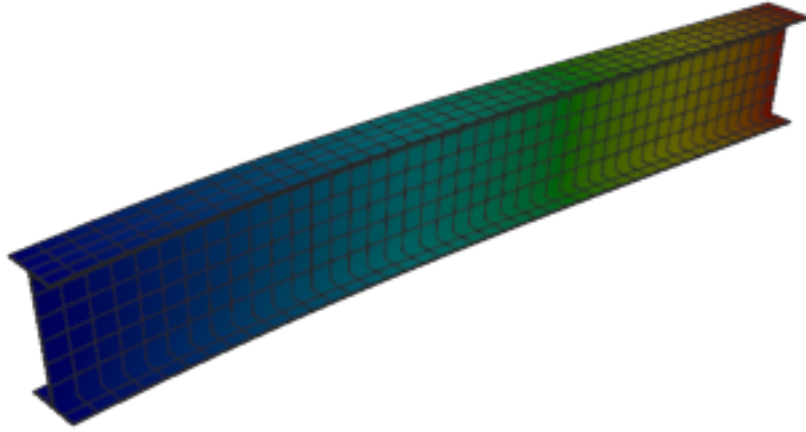


Figure 65: Sesam — mode 3, 51.991 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.998	+0.01	106741	1.35e-26	1.05e-26	122.01	-1.16e-13	1.03e-13	11.046
Sesam	51.991	-0.01	106714	7.03e-28	8.47e-26	122.00	2.65e-14	-2.91e-13	-11.046

Mode 4

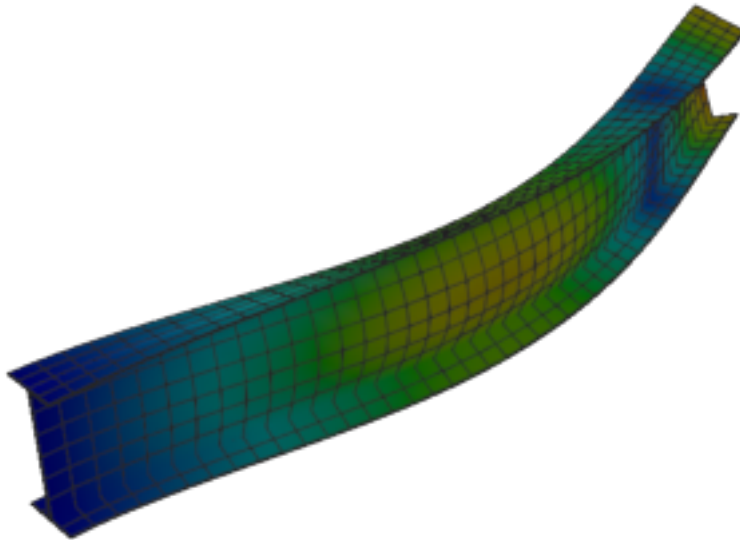


Figure 66: Abaqus — mode 4, 75.683 Hz

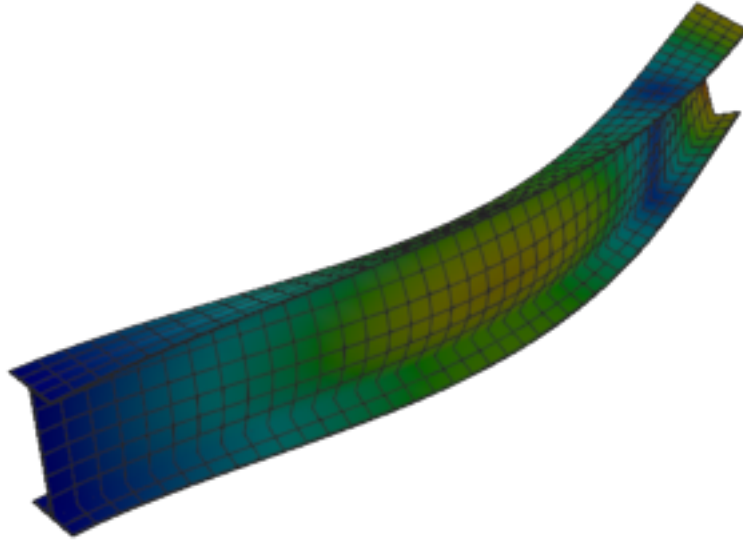


Figure 67: Sesam — mode 4, 75.192 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.683	+0.33	226132	1.88e-28	36.92	2.68e-25	-1.37e-14	-6.076	-5.18e-13
Sesam	75.192	-0.33	223203	1.10e-27	36.80	9.74e-26	-3.31e-14	-6.067	-3.12e-13

Mode 5

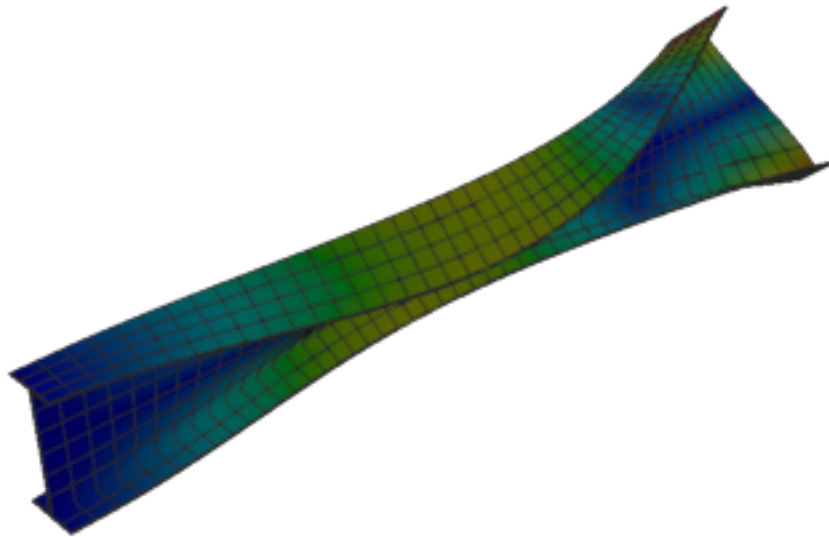


Figure 68: Abaqus — mode 5, 96.393 Hz

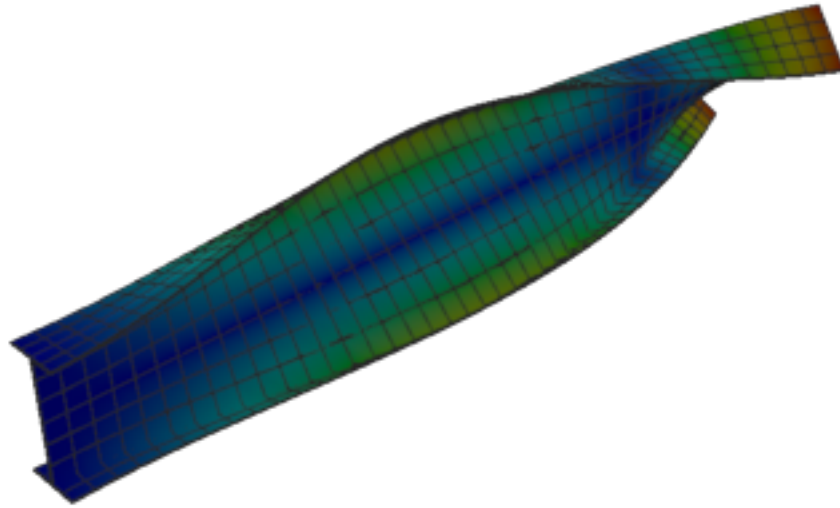


Figure 69: Sesam — mode 5, 95.930 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	96.393	+0.24	366818	7.25e-28	1.11e-22	7.70e-26	-2.69e-14	-1.05e-11	-2.77e-13
Sesam	95.930	-0.24	363300	2.85e-27	3.92e-24	2.81e-26	5.34e-14	1.98e-12	-1.68e-13

Mode 6

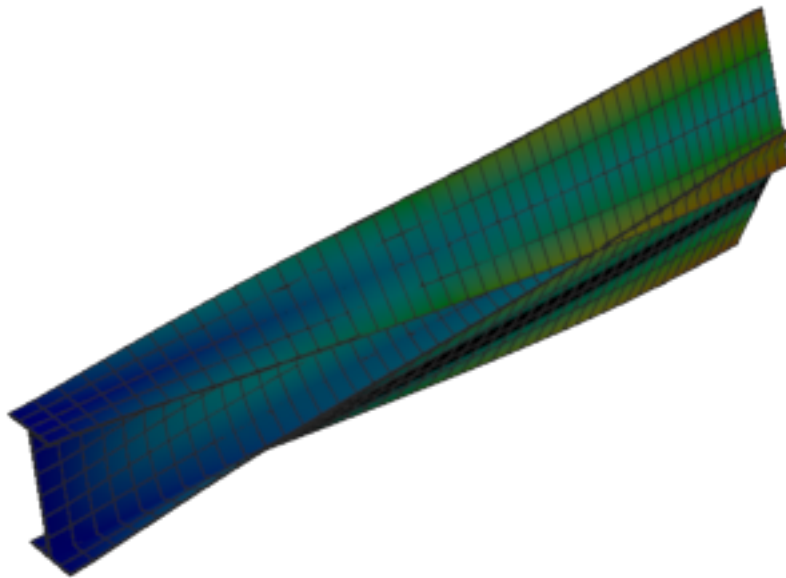


Figure 70: Abaqus — mode 6, 126.961 Hz

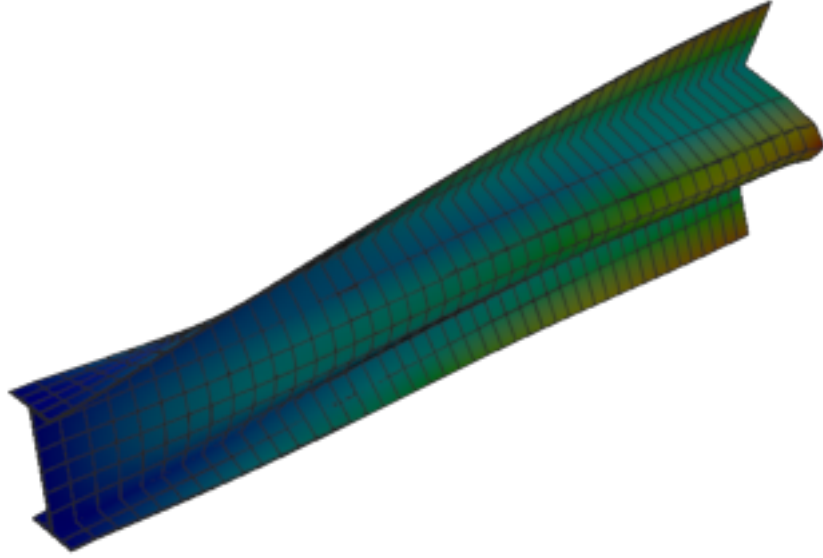


Figure 71: Sesam — mode 6, 125.116 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	126.960	+0.73	636351	1.52e-27	0.02	2.42e-26	3.90e-14	-0.132	-1.56e-13
Sesam	125.116	-0.73	617993	3.59e-30	0.02	5.54e-26	-1.89e-15	0.134	-2.35e-13

Mode 7

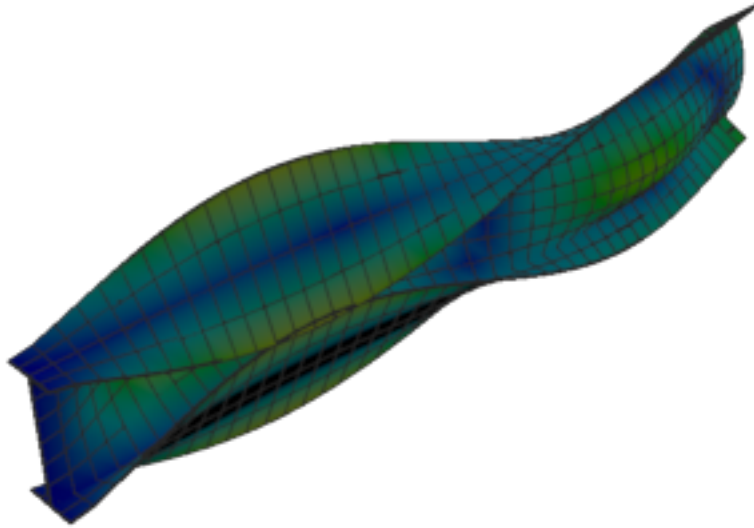


Figure 72: Abaqus — mode 7, 145.566 Hz

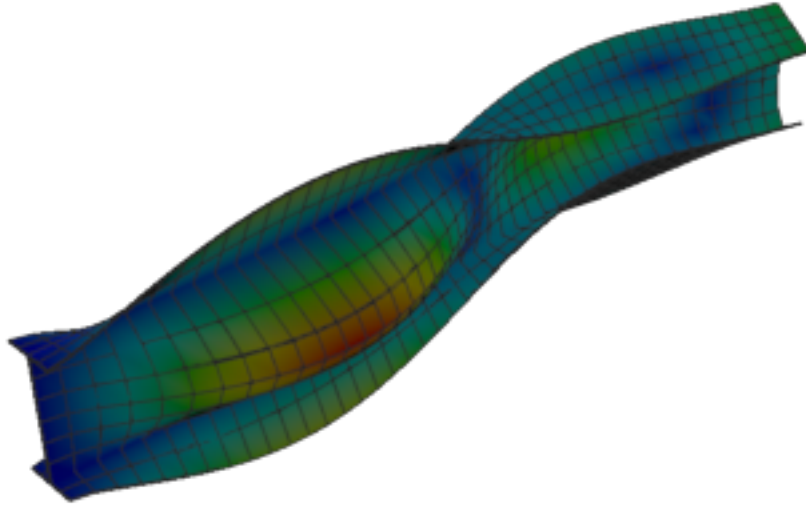


Figure 73: Sesam — mode 7, 141.556 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	145.570	+1.40	836523	2.58e-27	3.34	1.12e-26	-5.08e-14	1.829	1.06e-13
Sesam	141.556	-1.40	791068	1.14e-28	3.46	3.39e-27	1.07e-14	-1.860	5.82e-14

Mode 8

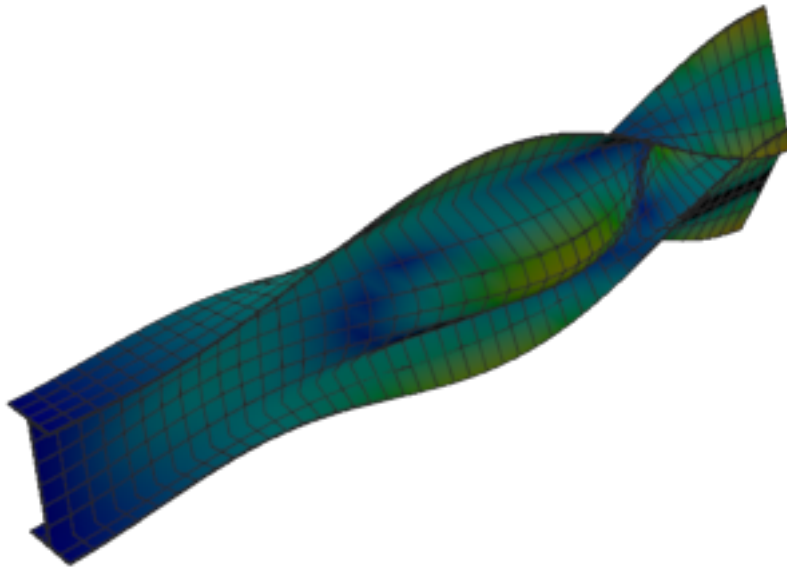


Figure 74: Abaqus — mode 8, 169.389 Hz

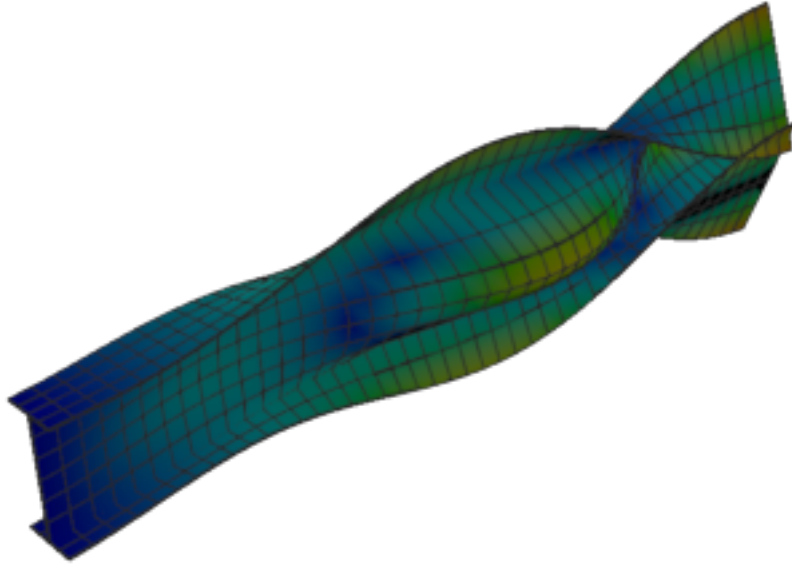


Figure 75: Sesam — mode 8, 165.030 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	169.390	+1.30	1.13275e+06	2.66e-25	5.68	6.71e-24	-5.16e-13	2.383	-2.59e-12
Sesam	165.030	-1.30	1.07519e+06	5.28e-28	5.45	4.78e-26	2.30e-14	2.334	2.19e-13

Mode 9

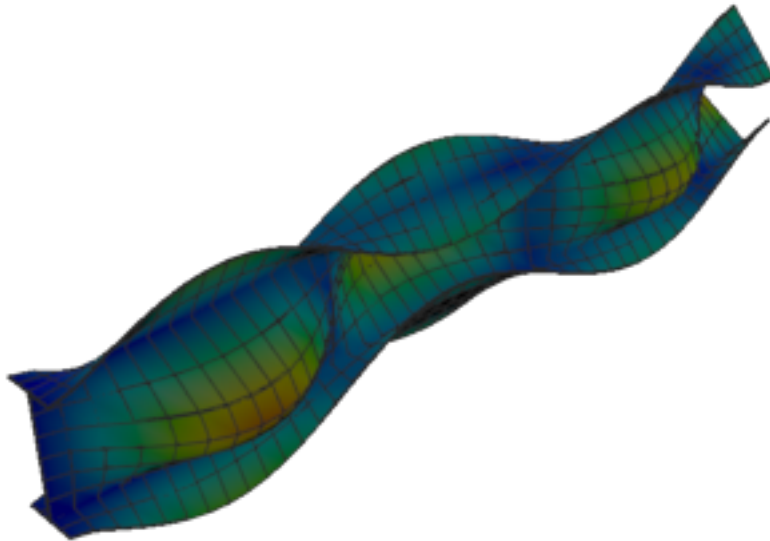


Figure 76: Abaqus — mode 9, 198.748 Hz

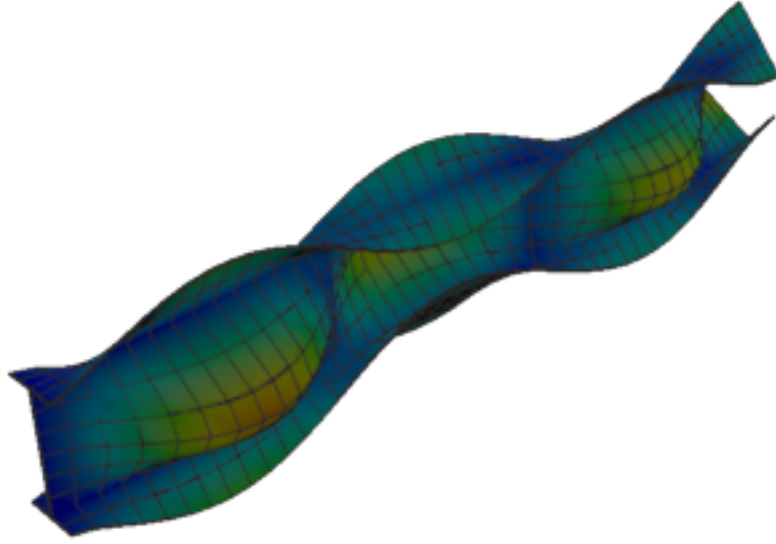


Figure 77: Sesam — mode 9, 190.099 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	198.750	+2.22	1.55943e+06	6.12e-22	0.59	1.15e-20	2.47e-11	-0.771	1.07e-10
Sesam	190.099	-2.22	1.42665e+06	1.59e-30	0.64	8.33e-27	-1.26e-15	-0.798	9.13e-14

Mode 10

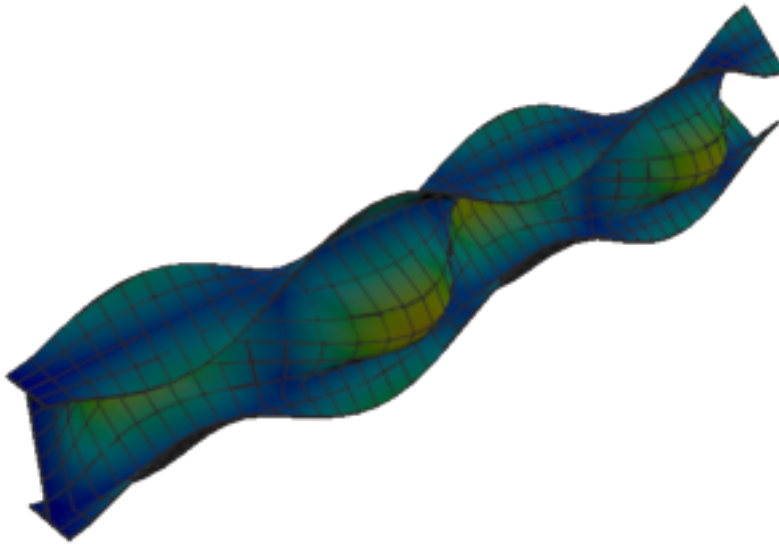


Figure 78: Abaqus — mode 10, 242.545 Hz

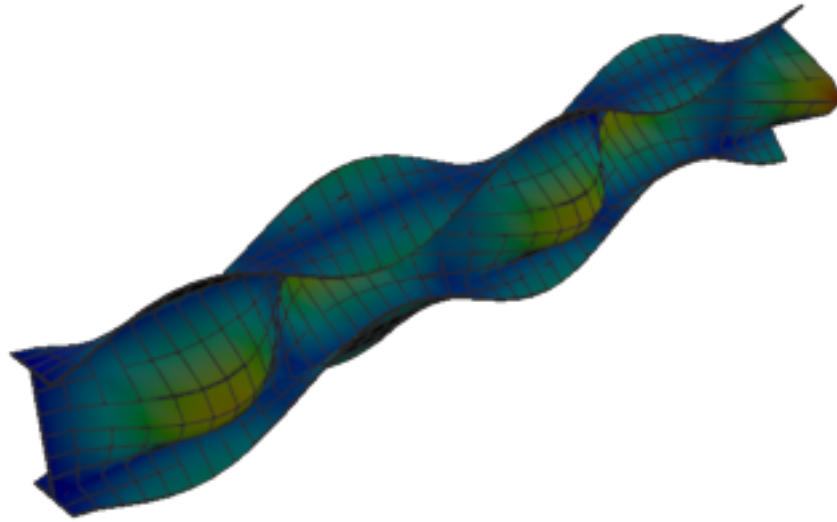


Figure 79: Sesam — mode 10, 229.460 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	242.550	+2.77	2.32244e+06	3.62e-17	1.52	5.68e-16	6.02e-09	1.232	2.38e-08
Sesam	229.460	-2.77	2.07861e+06	1.61e-29	1.32	5.25e-27	4.01e-15	-1.150	7.25e-14

Mode 11

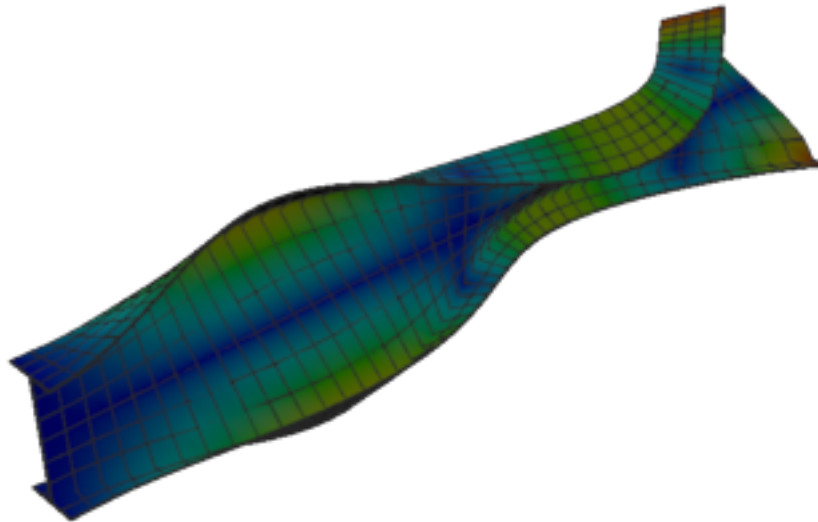


Figure 80: Abaqus — mode 11, 252.486 Hz

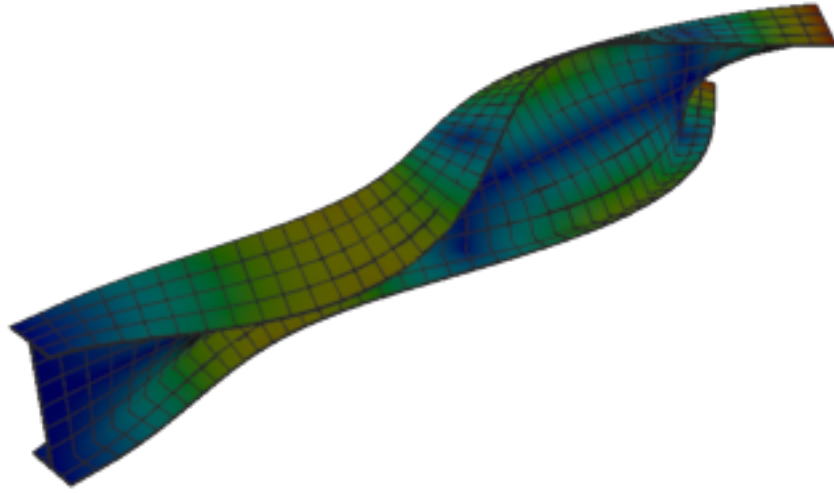


Figure 81: Sesam — mode 11, 250.786 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	252.490	+0.34	2.51672e+06	4.88e-17	7.27e-17	7.10e-16	6.99e-09	8.53e-09	2.67e-08
Sesam	250.786	-0.34	2.48294e+06	6.33e-21	7.49e-20	8.71e-20	7.95e-11	-2.74e-10	2.95e-10

Shell, 1st order, QUAD, reduced integration

Mode 1

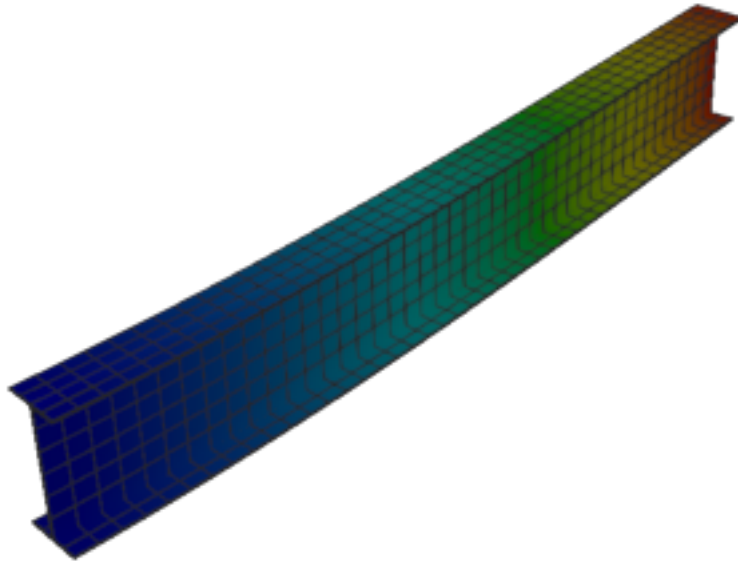


Figure 82: Abaqus — mode 1, 12.373 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.373	6043.5	1.78e-28	119.95	5.35e-25	-1.33e-14	10.952	-7.31e-13

Mode 2

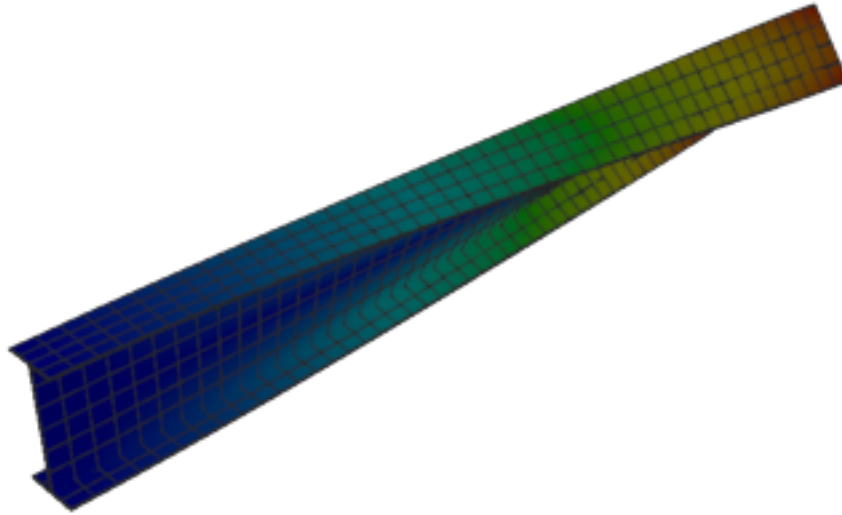


Figure 83: Abaqus — mode 2, 19.230 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	19.230	14599	1.25e-26	4.60e-21	3.10e-26	-1.12e-13	6.78e-11	1.76e-13

Mode 3

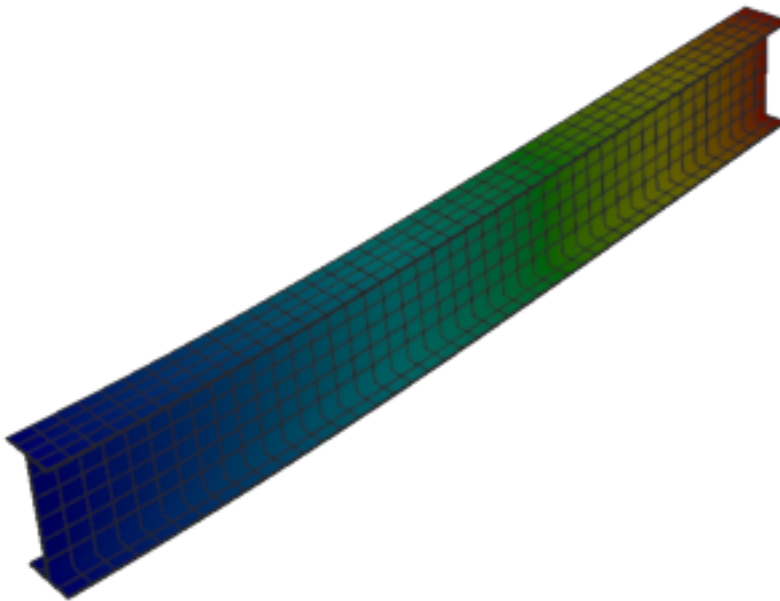


Figure 84: Abaqus — mode 3, 51.849 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.849	106129	2.48e-26	1.19e-25	122.02	-1.58e-13	3.45e-13	11.046

Mode 4

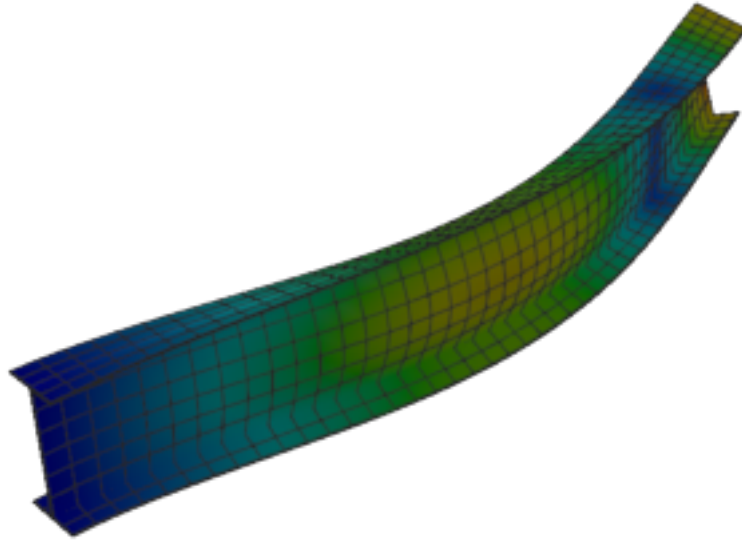


Figure 85: Abaqus — mode 4, 73.558 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	73.558	213611	2.90e-28	36.98	6.94e-25	-1.70e-14	-6.081	-8.33e-13

Mode 5

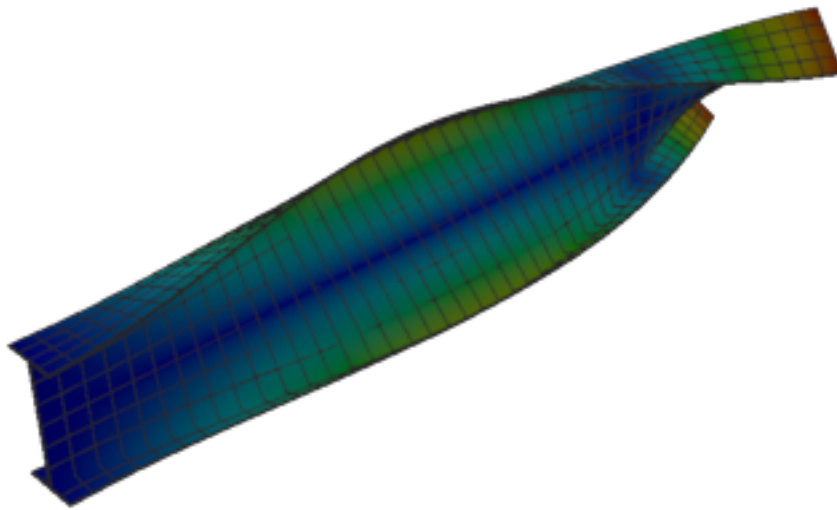


Figure 86: Abaqus — mode 5, 93.709 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	93.709	346673	9.12e-28	8.02e-23	5.37e-26	3.02e-14	-8.96e-12	2.32e-13

Mode 6

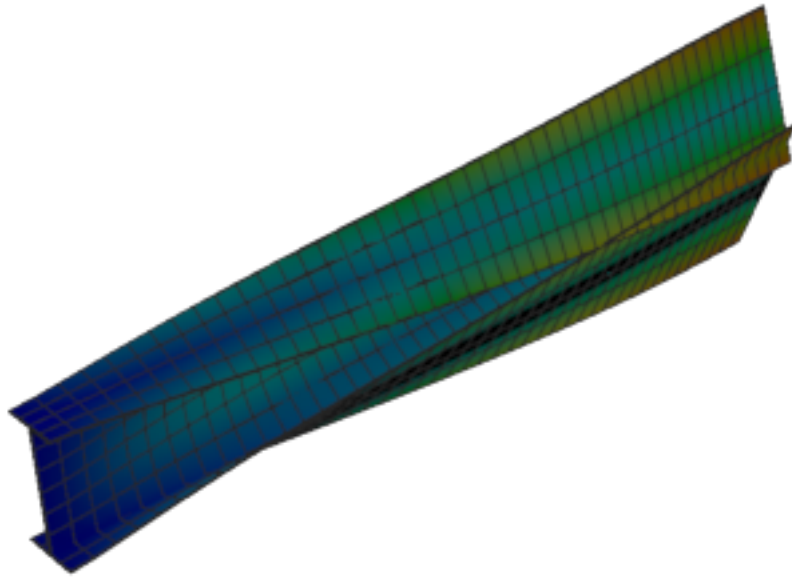


Figure 87: Abaqus — mode 6, 126.870 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	126.870	635447	1.80e-30	0.01	1.84e-25	1.34e-15	-0.078	-4.29e-13

Mode 7

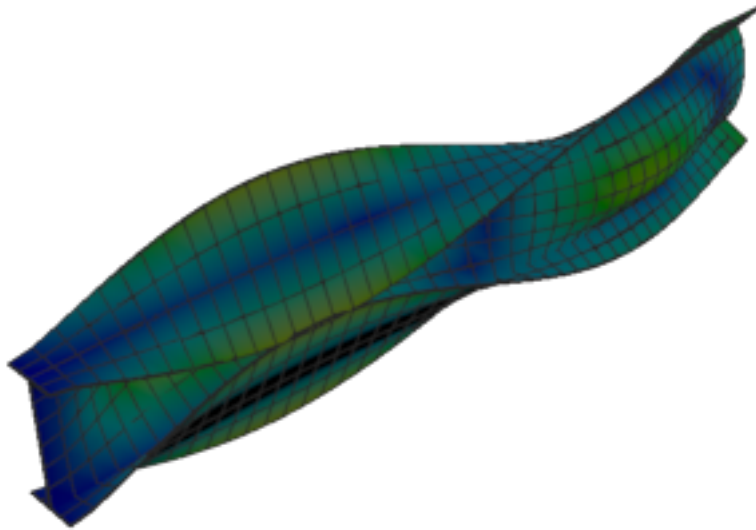


Figure 88: Abaqus — mode 7, 144.579 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	144.580	825226	1.99e-29	3.79	2.06e-26	-4.46e-15	1.947	1.43e-13

Mode 8

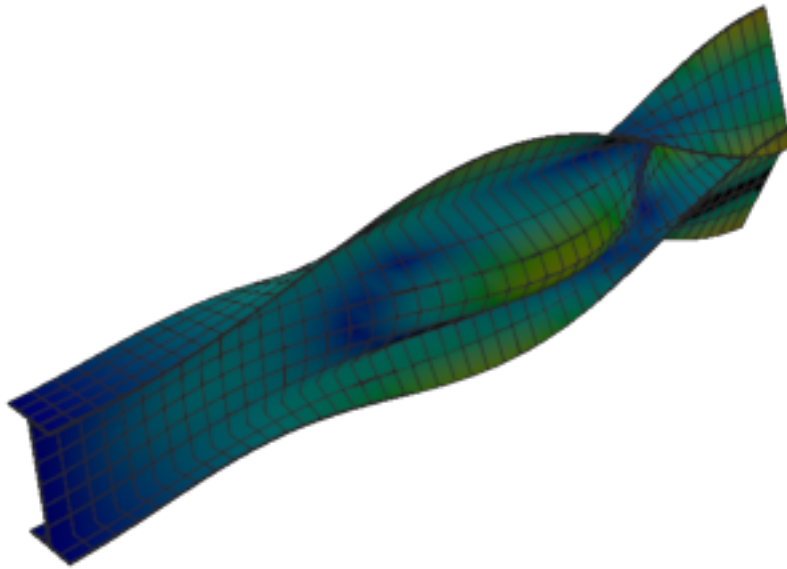


Figure 89: Abaqus — mode 8, 168.379 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	168.380	1.11927e+06	2.51e-28	5.44	1.97e-25	1.58e-14	2.332	-4.43e-13

Mode 9

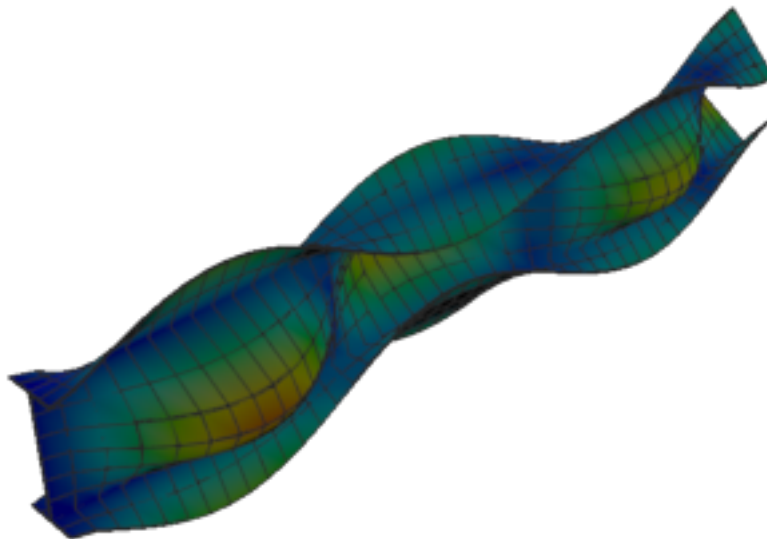


Figure 90: Abaqus — mode 9, 197.515 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	197.510	1.54014e+06	1.19e-26	0.62	1.84e-25	-1.09e-13	-0.786	4.29e-13

Mode 10

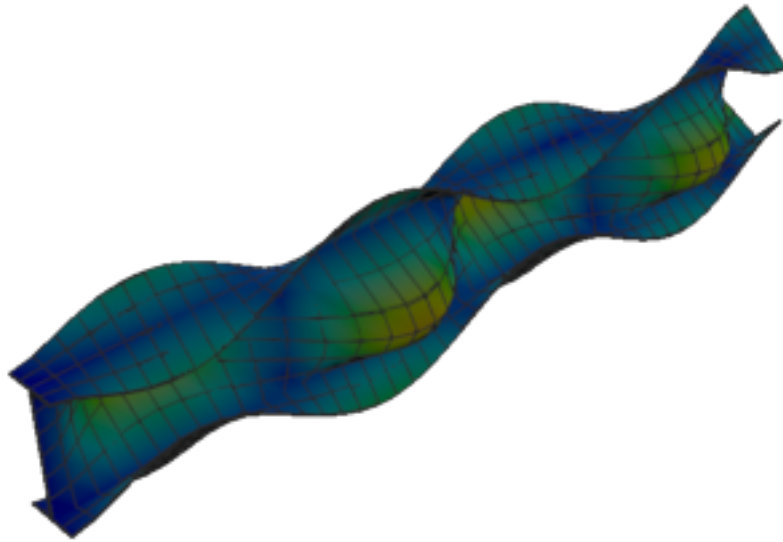


Figure 91: Abaqus — mode 10, 241.275 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	241.270	2.29818e+06	2.67e-22	1.61	1.69e-20	-1.63e-11	1.269	1.30e-10

Mode 11

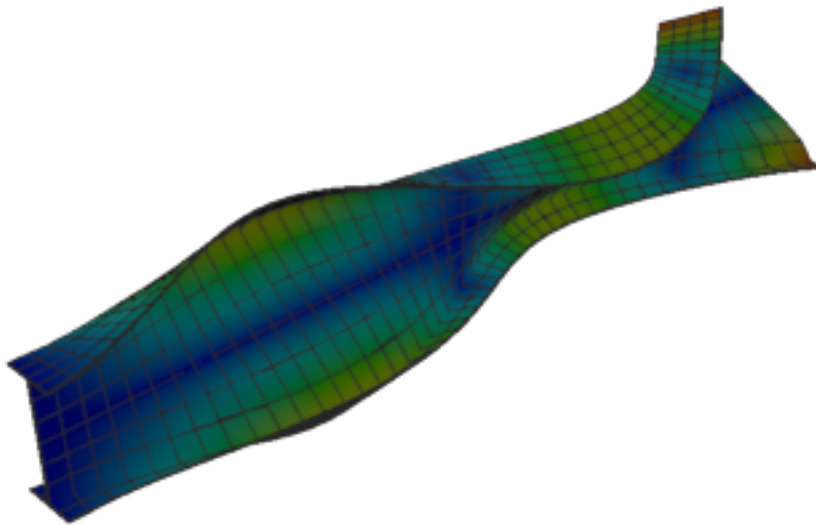


Figure 92: Abaqus — mode 11, 245.071 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	245.070	2.37106e+06	3.55e-23	8.35e-21	8.47e-21	-5.95e-12	9.14e-11	9.20e-11

Shell, 2nd order, TRI

Mode 1

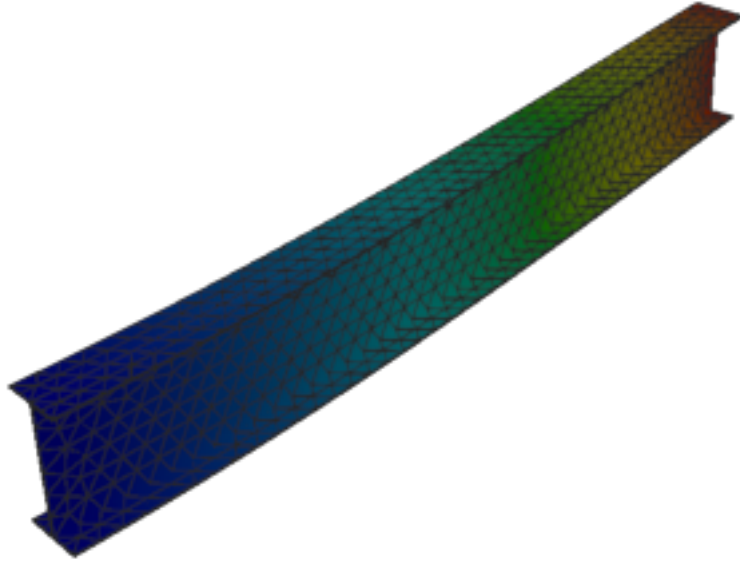


Figure 93: Abaqus — mode 1, 12.756 Hz

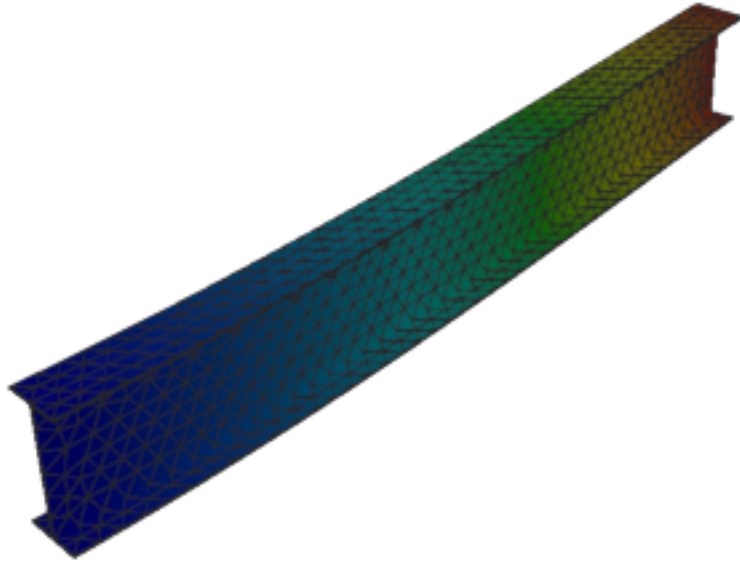


Figure 94: Sesam — mode 1, 12.756 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.756	9.02e-04	6423.3	2.07e-18	119.94	3.02e-12	1.44e-09	10.952	1.74e-06
Sesam	12.756	-9.02e-04	6423.52	1.73e-27	119.94	5.84e-24	-4.16e-14	10.952	-2.42e-12

Mode 2

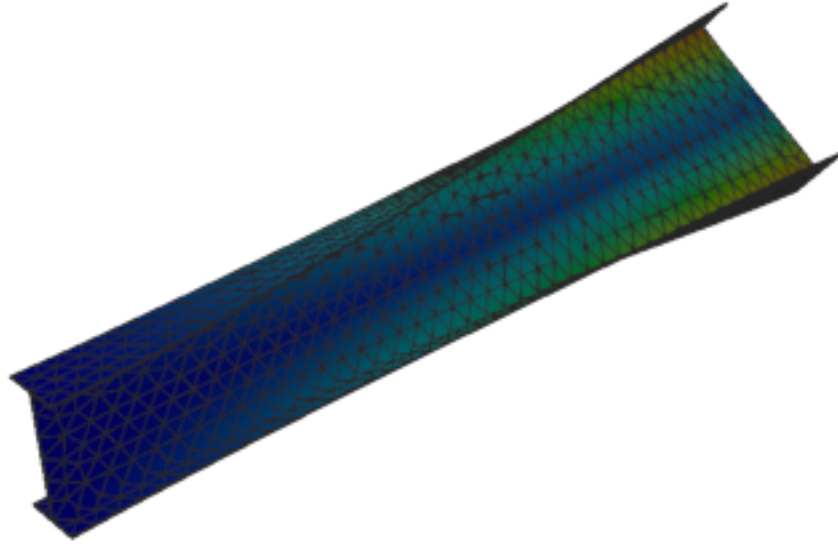


Figure 95: Abaqus — mode 2, 19.567 Hz

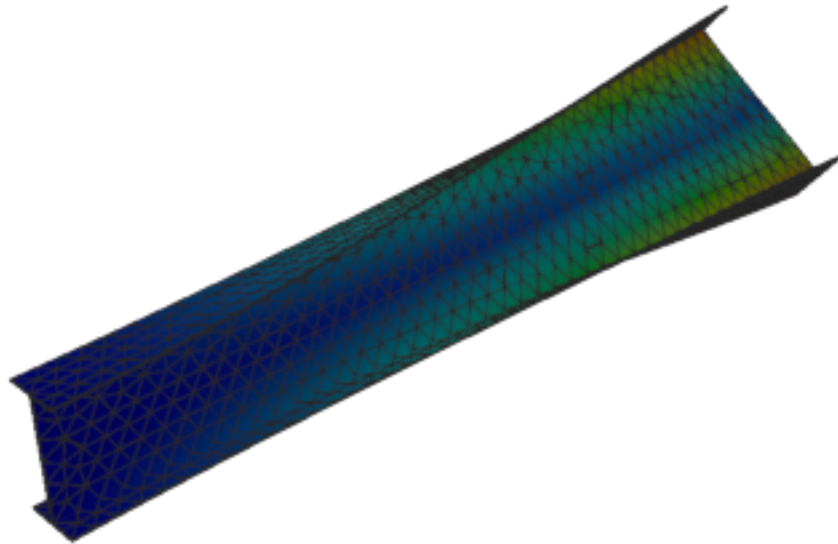


Figure 96: Sesam — mode 2, 19.505 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	19.567	+0.16	15115	3.71e-13	3.08e-10	4.41e-12	6.09e-07	1.75e-05	-2.10e-06
Sesam	19.505	-0.16	15019.1	2.03e-25	1.78e-08	1.33e-23	4.51e-13	1.33e-04	3.65e-12

Mode 3

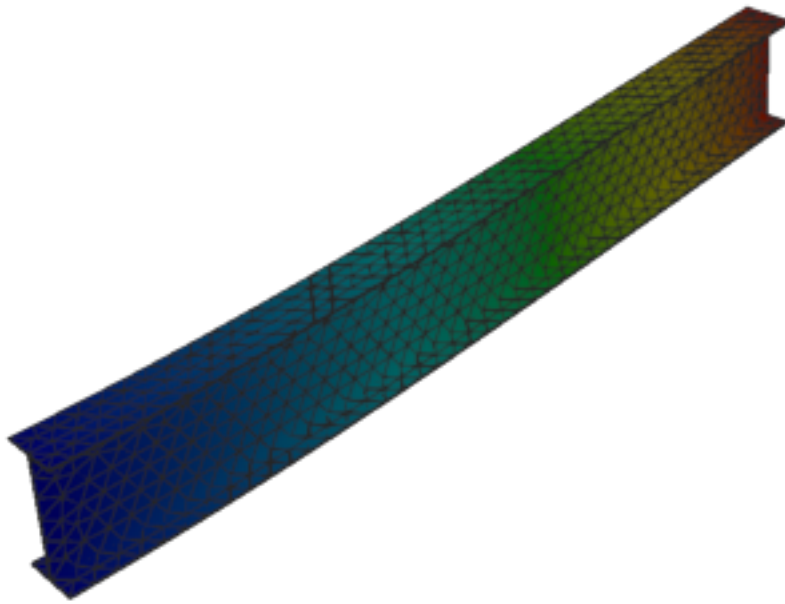


Figure 97: Abaqus — mode 3, 51.969 Hz

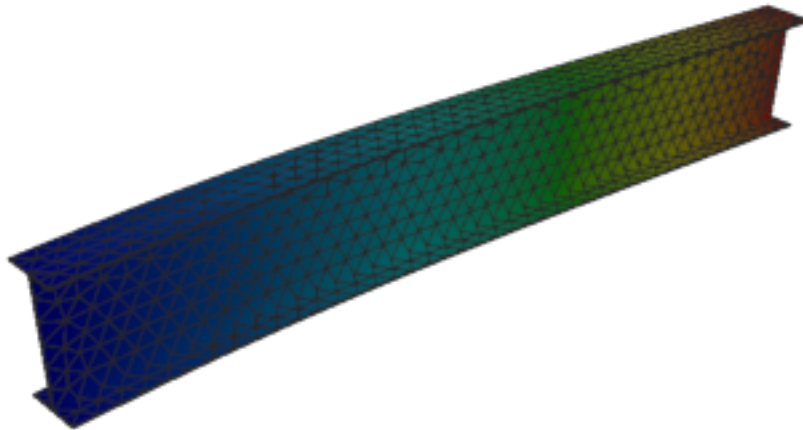


Figure 98: Sesam — mode 3, 51.970 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.969	-1.34e-03	106622	4.50e-14	9.00e-10	122.03	2.12e-07	3.00e-05	11.047
Sesam	51.970	1.34e-03	106628	6.59e-14	9.47e-24	122.03	-2.57e-07	-3.08e-12	-11.047

Mode 4

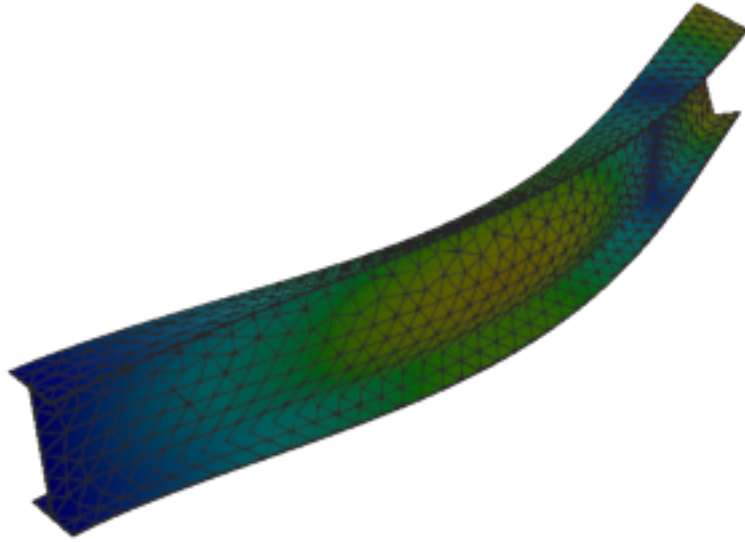


Figure 99: Abaqus — mode 4, 75.145 Hz

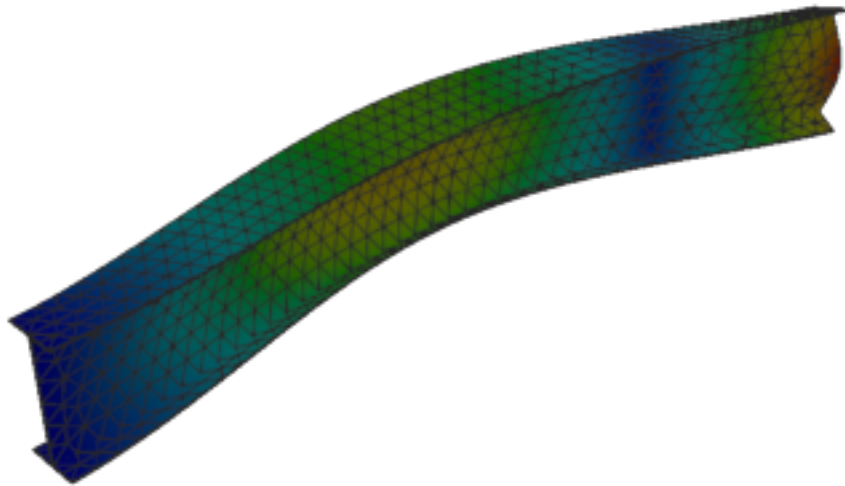


Figure 100: Sesam — mode 4, 75.172 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.145	-0.02	222925	1.24e-16	36.88	1.80e-09	1.11e-08	-6.073	4.24e-05
Sesam	75.172	+0.02	223083	1.13e-25	36.87	8.58e-25	-3.36e-13	6.072	-9.26e-13

Mode 5

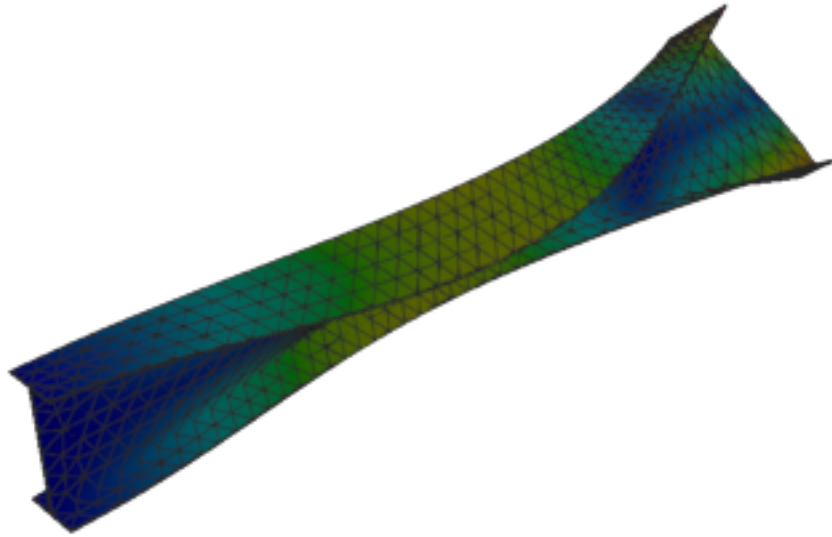


Figure 101: Abaqus — mode 5, 96.001 Hz

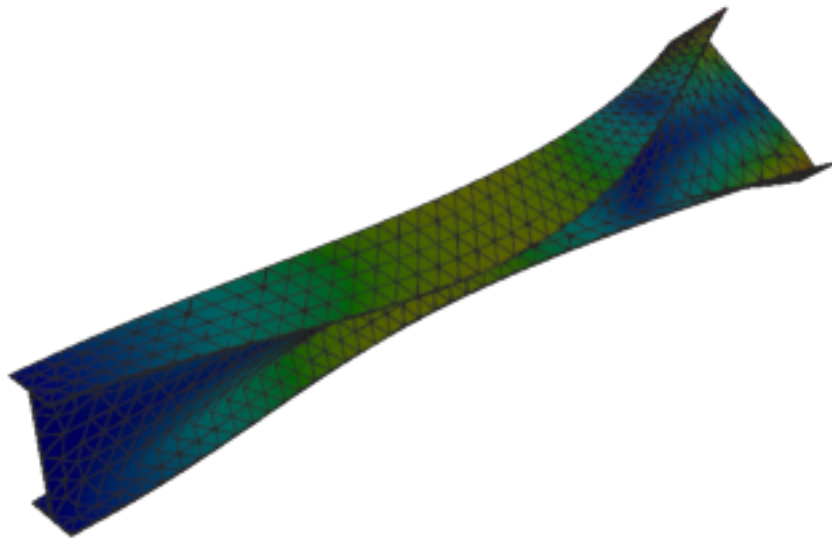


Figure 102: Sesam — mode 5, 95.934 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	96.001	+0.04	363843	8.08e-12	6.17e-09	5.02e-12	-2.84e-06	-7.85e-05	2.24e-06
Sesam	95.934	-0.04	363330	7.77e-26	1.06e-09	4.95e-24	-2.79e-13	3.26e-05	2.22e-12

Mode 6

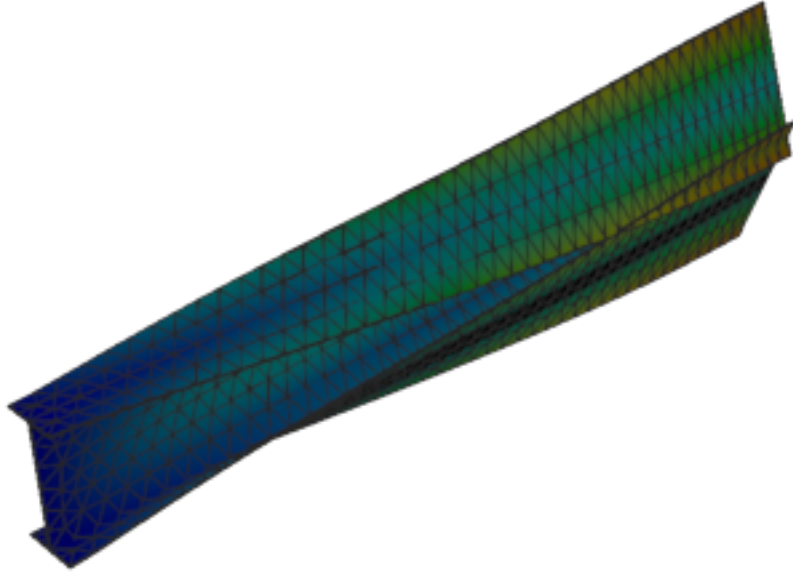


Figure 103: Abaqus — mode 6, 125.207 Hz

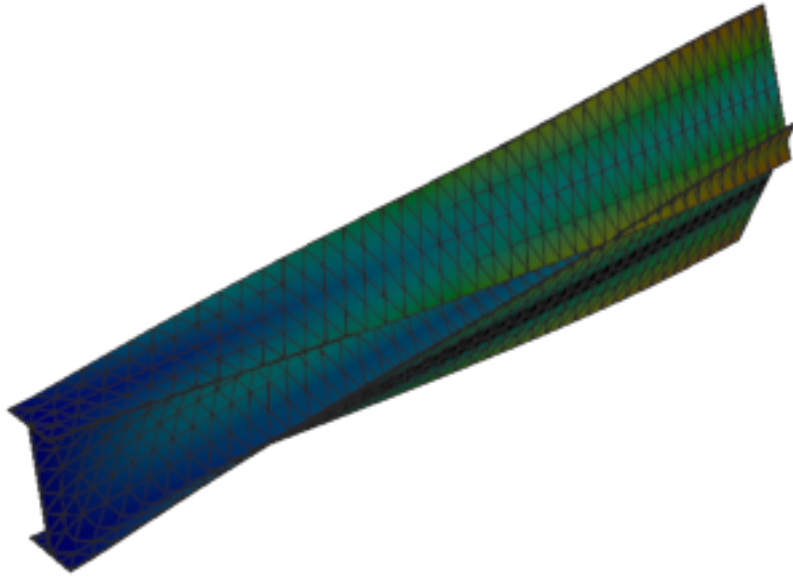


Figure 104: Sesam — mode 6, 125.173 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	125.210	+0.01	618895	4.62e-16	0.02	1.76e-10	-2.15e-08	-0.138	-1.33e-05
Sesam	125.173	-0.01	618555	1.13e-26	0.02	5.47e-23	1.06e-13	-0.144	7.40e-12

Mode 7

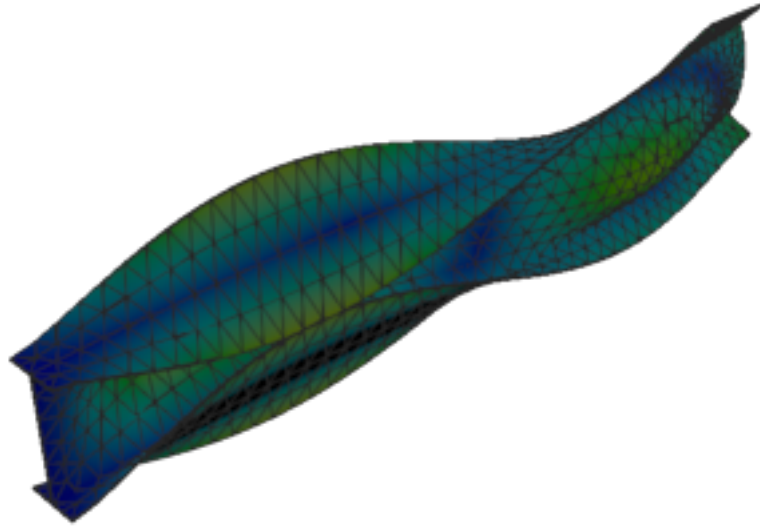


Figure 105: Abaqus — mode 7, 142.773 Hz

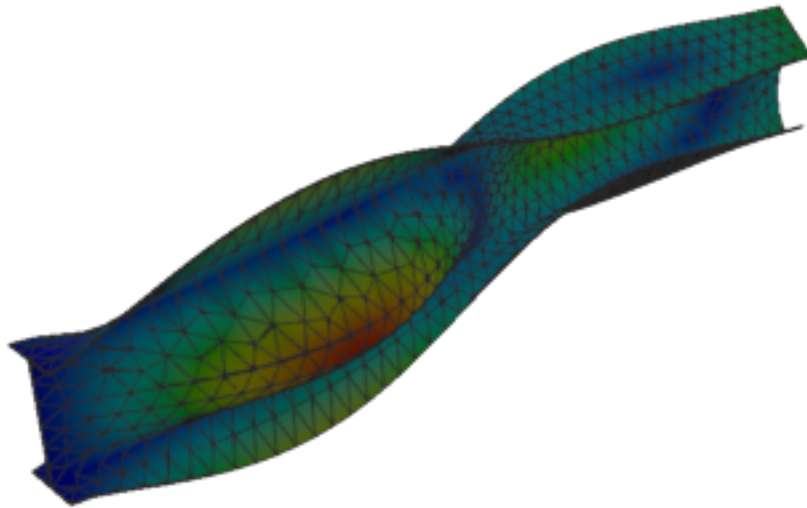


Figure 106: Sesam — mode 7, 142.768 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	142.770	5.60e-04	804737	9.41e-15	3.54	1.08e-09	-9.70e-08	1.880	3.28e-05
Sesam	142.768	-5.60e-04	804681	3.82e-26	3.42	8.44e-24	-1.95e-13	-1.850	2.90e-12

Mode 8

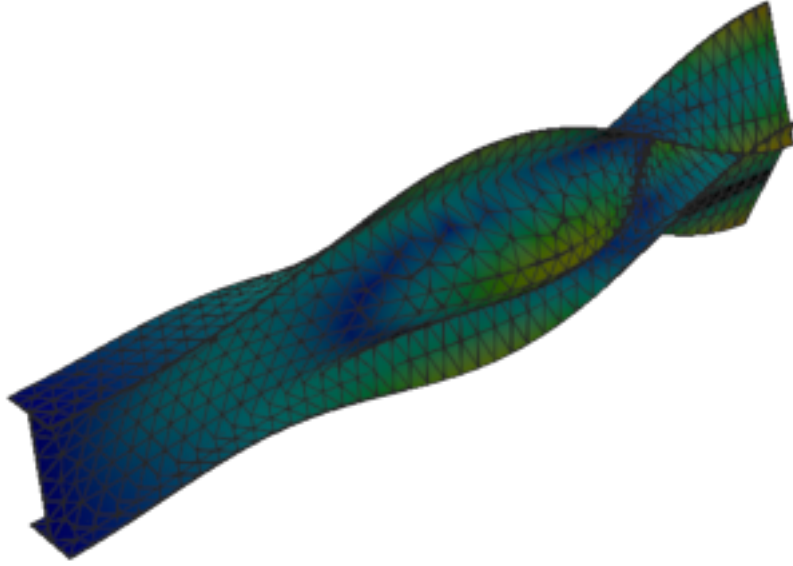


Figure 107: Abaqus — mode 8, 166.598 Hz

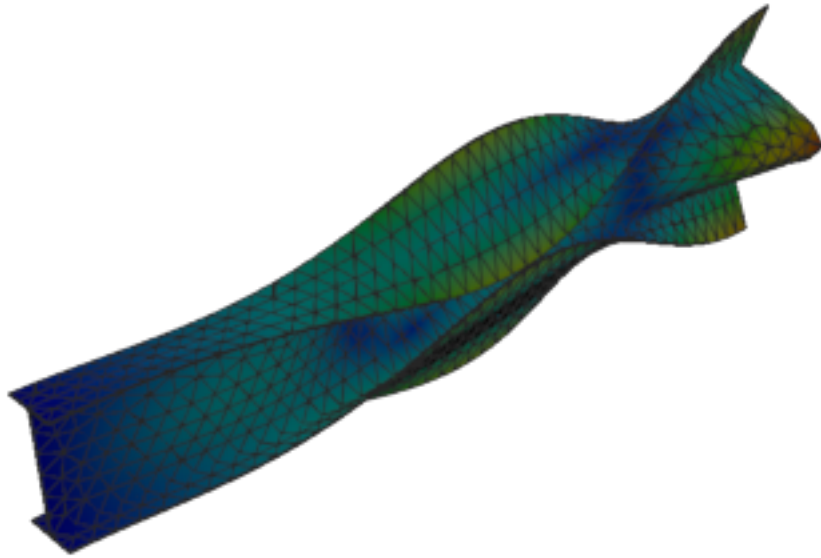


Figure 108: Sesam — mode 8, 166.334 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	166.600	+0.08	1.09572e+06	1.06e-14	5.52	1.13e-08	-1.03e-07	2.349	1.06e-04
Sesam	166.334	-0.08	1.09224e+06	4.59e-26	5.56	5.51e-24	2.14e-13	-2.358	-2.35e-12

Mode 9

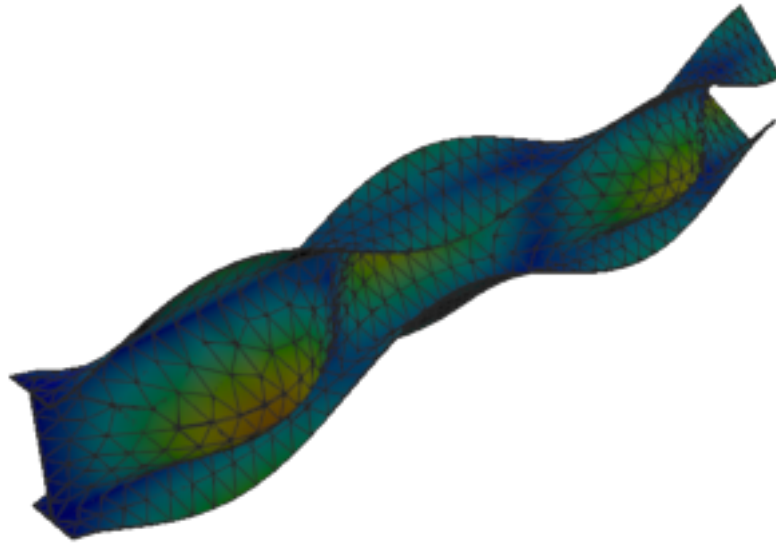


Figure 109: Abaqus — mode 9, 192.840 Hz

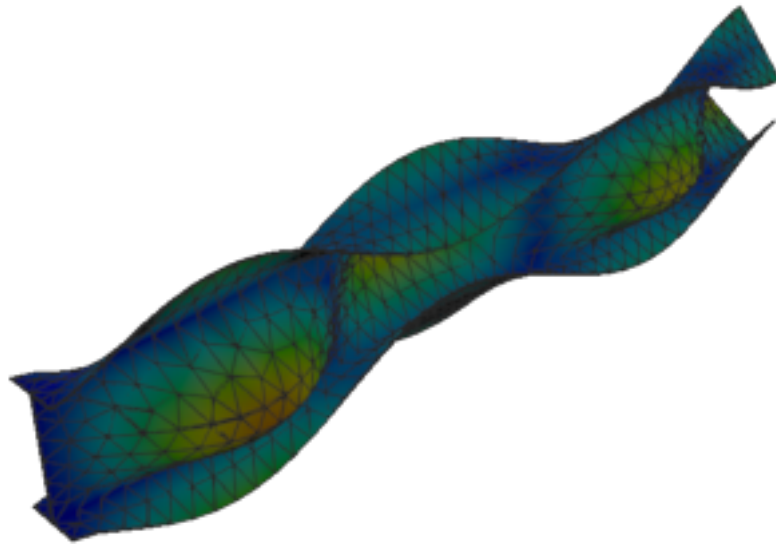


Figure 110: Sesam — mode 9, 193.308 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	192.840	-0.12	1.4681e+06	5.91e-14	0.67	5.79e-09	2.43e-07	-0.818	-7.61e-05
Sesam	193.308	+0.12	1.47524e+06	3.41e-27	0.64	9.39e-26	5.84e-14	-0.801	3.06e-13

Mode 10

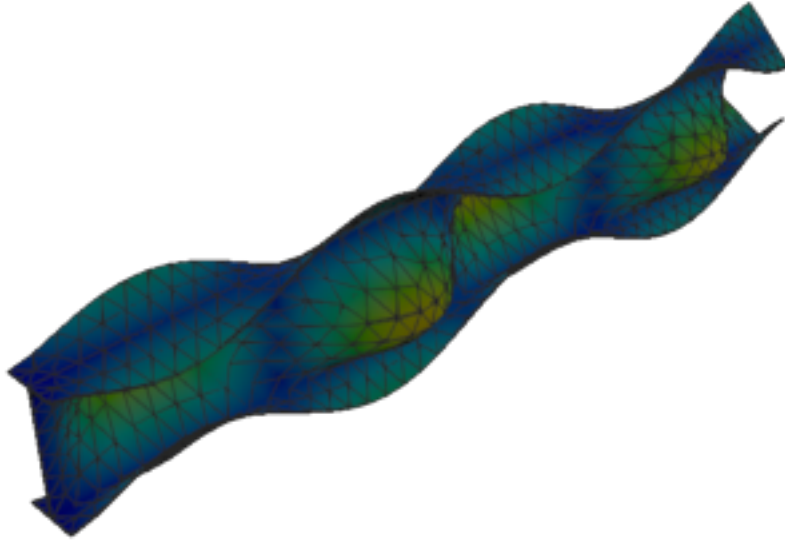


Figure 111: Abaqus — mode 10, 233.355 Hz

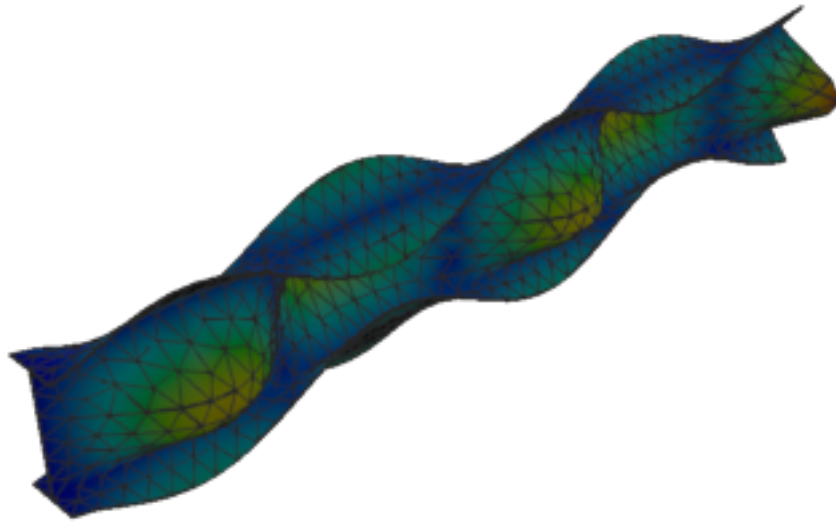


Figure 112: Sesam — mode 10, 234.613 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	233.360	-0.27	2.14979e+06	3.28e-15	1.38	3.26e-07	-5.73e-08	1.175	0.001
Sesam	234.613	+0.27	2.17302e+06	1.23e-18	1.40	2.13e-20	-1.11e-09	-1.185	-1.46e-10

Mode 11

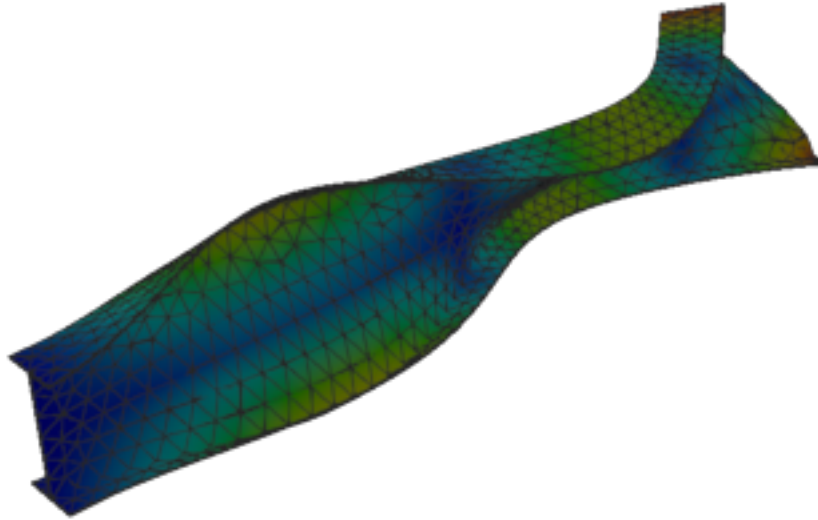


Figure 113: Abaqus — mode 11, 250.125 Hz

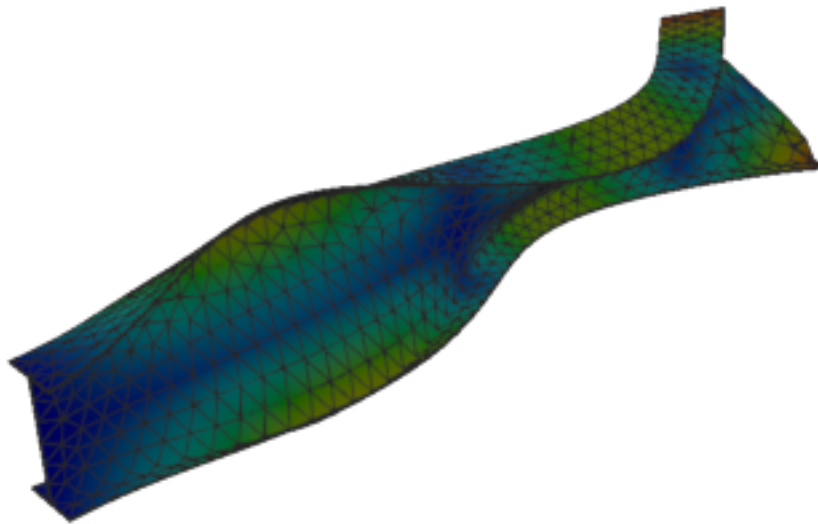


Figure 114: Sesam — mode 11, 250.240 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	250.130	-0.02	2.46987e+06	9.03e-11	3.18e-08	4.03e-09	9.50e-06	1.78e-04	6.35e-05
Sesam	250.240	+0.02	2.47215e+06	1.60e-13	1.65e-06	2.77e-15	-4.01e-07	0.001	-5.26e-08

Shell, 2nd order, QUAD

Mode 1

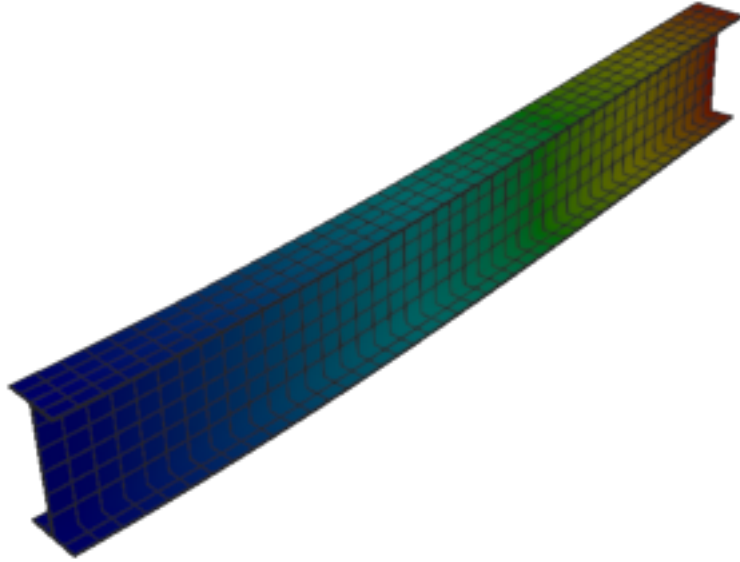


Figure 115: Abaqus — mode 1, 12.758 Hz

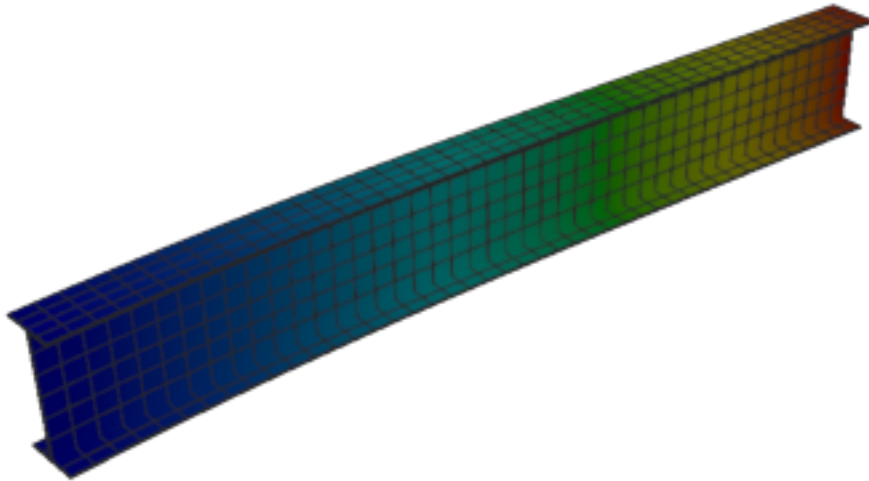


Figure 116: Sesam — mode 1, 12.755 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.758	+0.01	6426.1	1.23e-25	119.92	9.18e-25	3.51e-13	10.951	9.58e-13
Sesam	12.755	-0.01	6423.15	3.36e-26	119.94	2.47e-24	-1.83e-13	-10.952	-1.57e-12

Mode 2

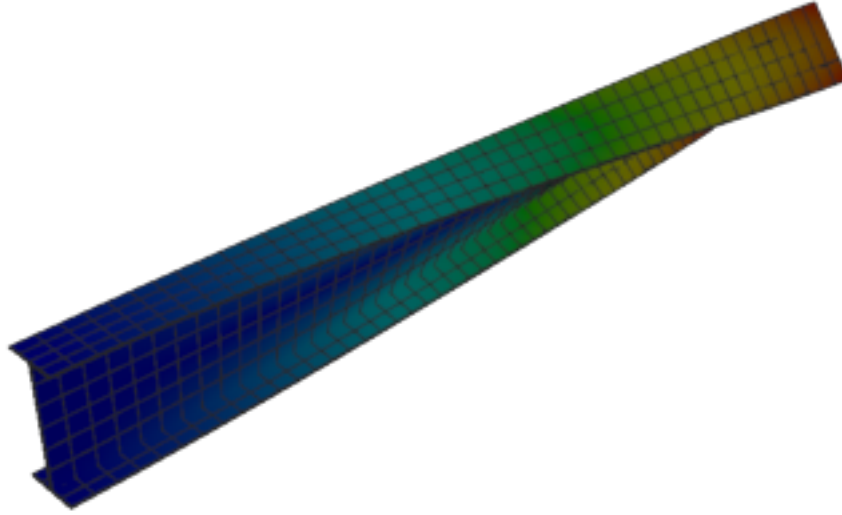


Figure 117: Abaqus — mode 2, 19.486 Hz

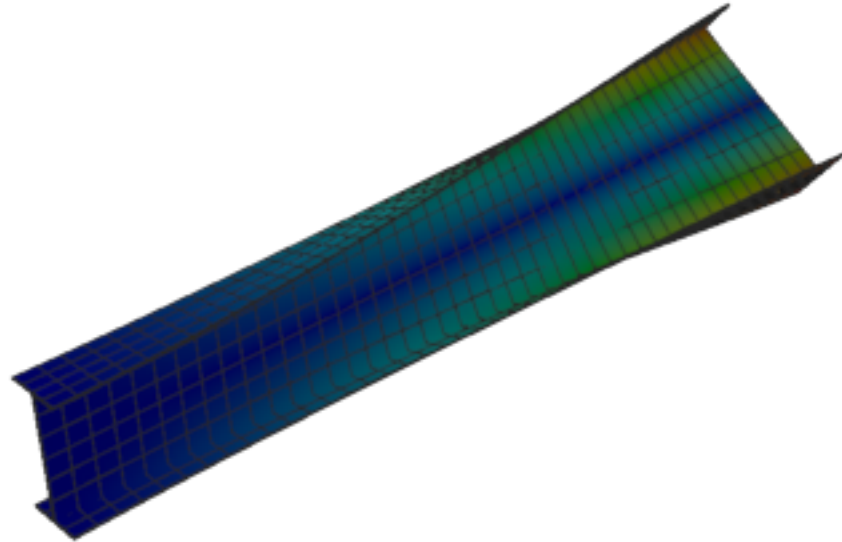


Figure 118: Sesam — mode 2, 19.473 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	19.486	+0.03	14990	1.04e-26	4.65e-20	2.40e-23	1.02e-13	2.16e-10	4.90e-12
Sesam	19.473	-0.03	14970.3	4.30e-26	1.24e-18	1.37e-23	-2.07e-13	1.11e-09	3.71e-12

Mode 3

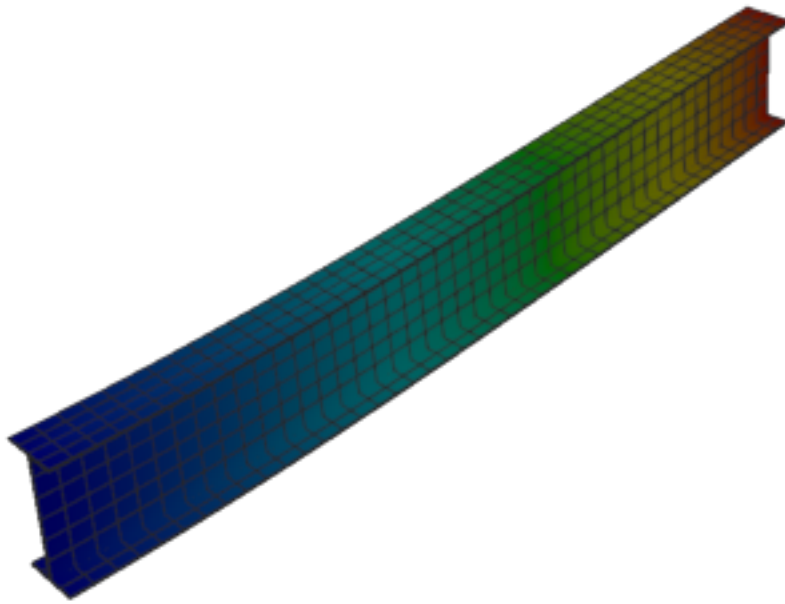


Figure 119: Abaqus — mode 3, 51.998 Hz

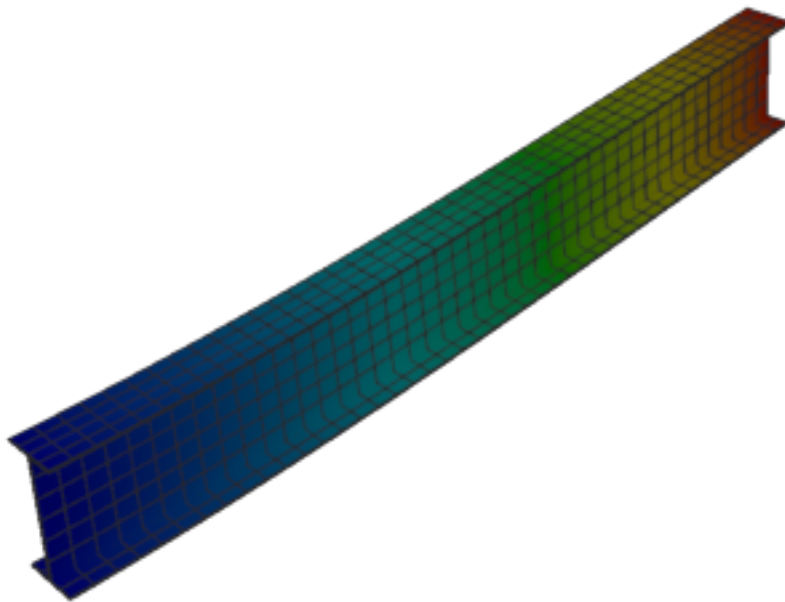


Figure 120: Sesam — mode 3, 51.970 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.998	+0.03	106740	5.15e-27	9.66e-26	121.97	7.18e-14	3.11e-13	11.044
Sesam	51.970	-0.03	106628	6.42e-26	7.11e-25	122.03	-2.53e-13	-8.43e-13	11.047

Mode 4

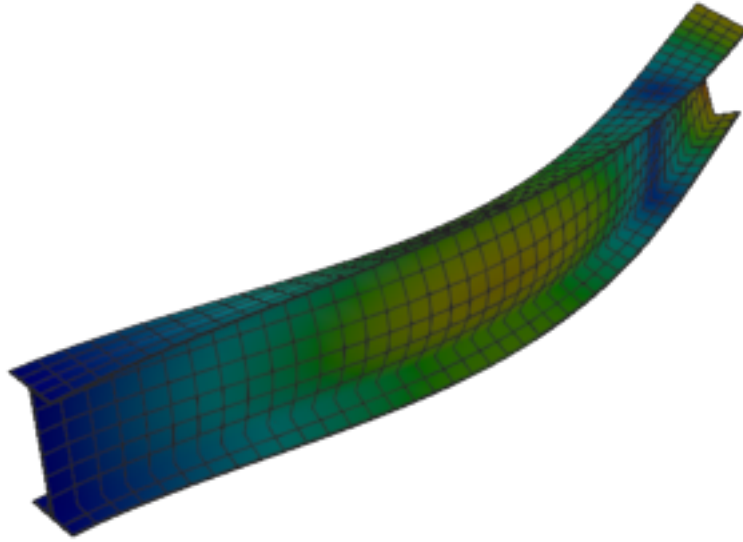


Figure 121: Abaqus — mode 4, 75.149 Hz

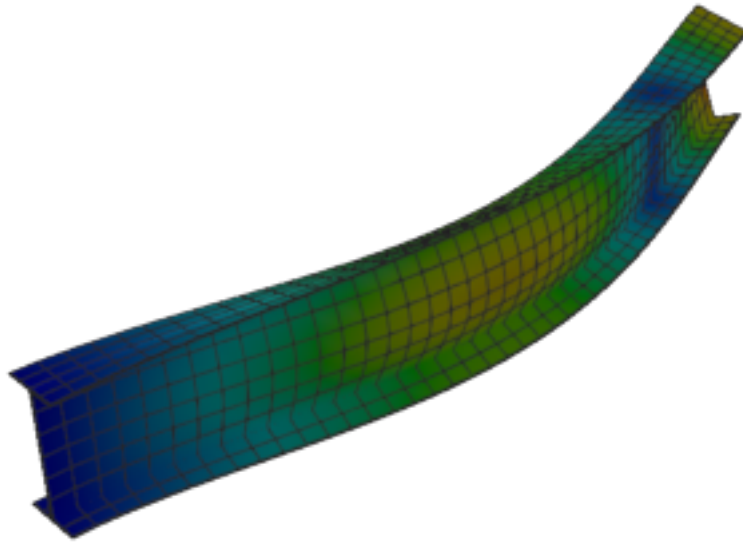


Figure 122: Sesam — mode 4, 75.125 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.149	+0.02	222949	1.40e-27	36.85	6.29e-24	-3.75e-14	-6.071	2.51e-12
Sesam	75.125	-0.02	222804	2.91e-28	36.86	2.56e-24	-1.70e-14	-6.071	1.60e-12

Mode 5

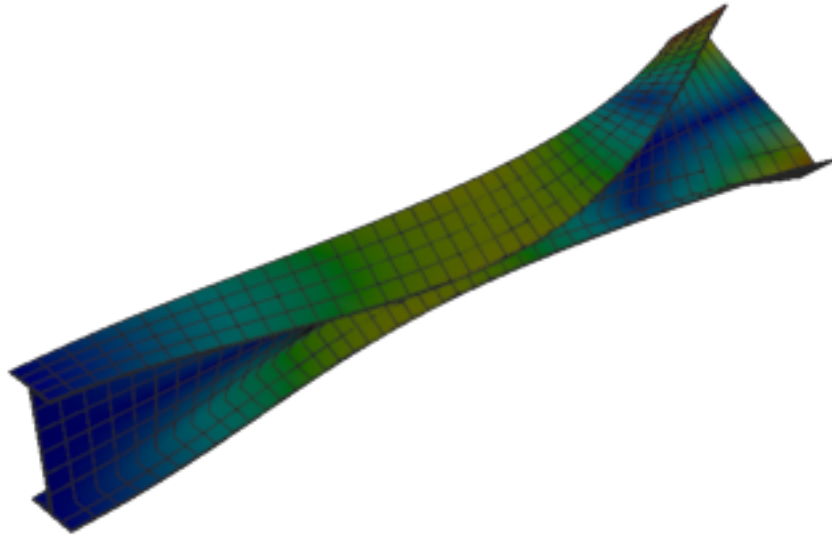


Figure 123: Abaqus — mode 5, 95.920 Hz

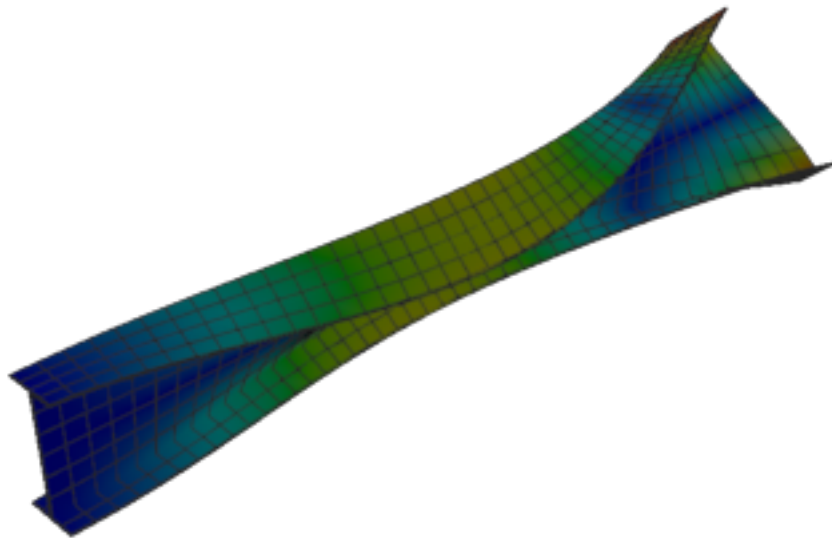


Figure 124: Sesam — mode 5, 95.889 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	95.920	+0.02	363224	7.50e-27	2.54e-21	8.04e-25	-8.66e-14	-5.04e-11	-8.97e-13
Sesam	95.889	-0.02	362989	1.39e-26	1.97e-21	1.90e-24	1.18e-13	4.44e-11	-1.38e-12

Mode 6

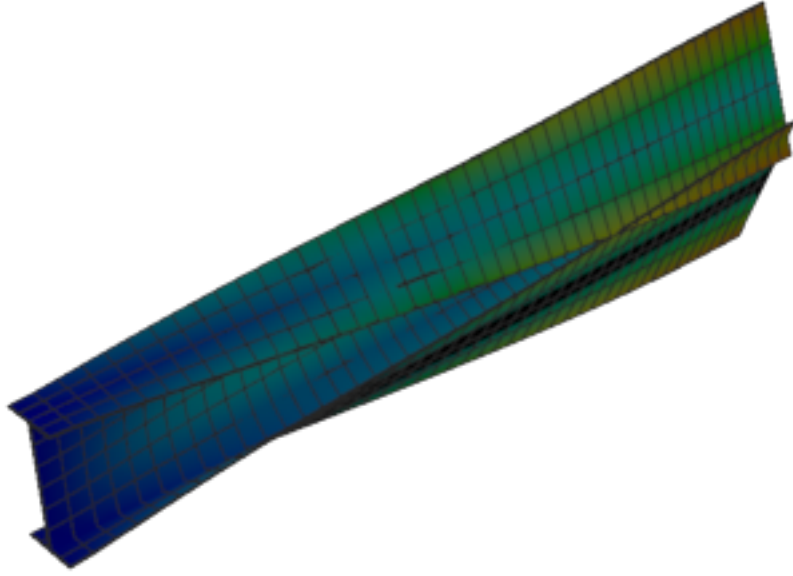


Figure 125: Abaqus — mode 6, 125.001 Hz

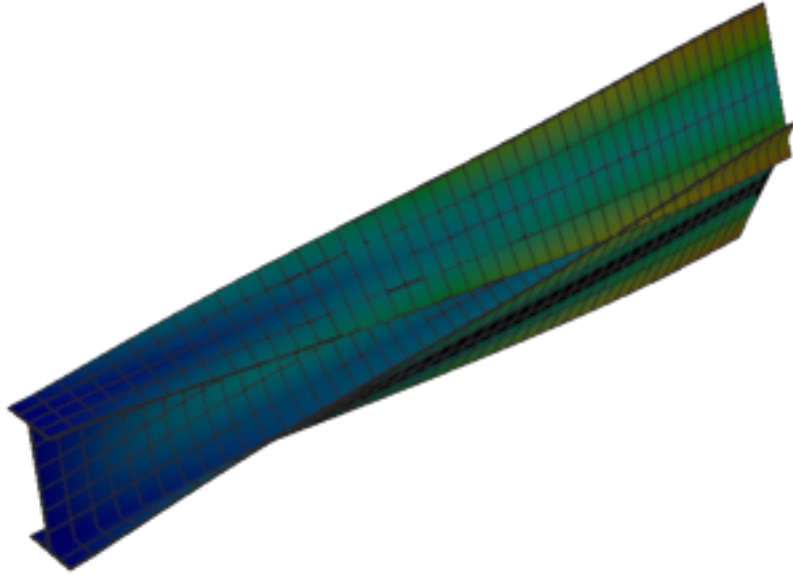


Figure 126: Sesam — mode 6, 124.987 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	125.000	+0.01	616856	5.44e-26	0.02	4.78e-23	-2.33e-13	-0.137	6.92e-12
Sesam	124.987	-0.01	616722	1.29e-26	0.02	6.86e-24	-1.13e-13	-0.137	2.62e-12

Mode 7

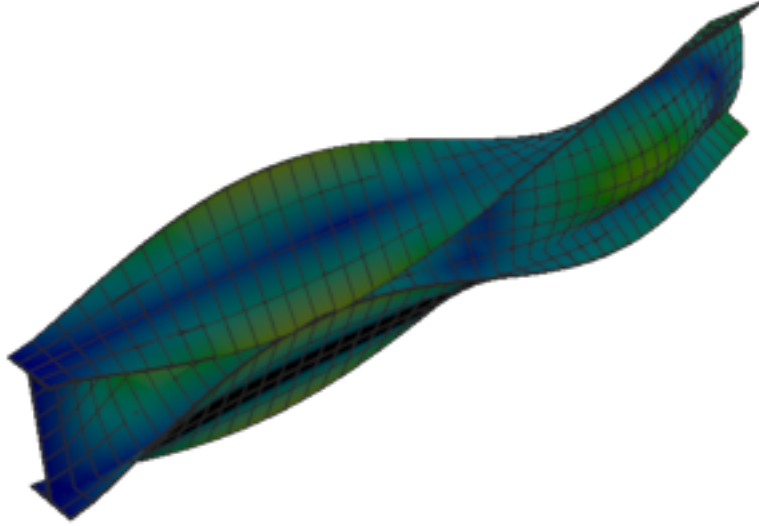


Figure 127: Abaqus — mode 7, 142.325 Hz

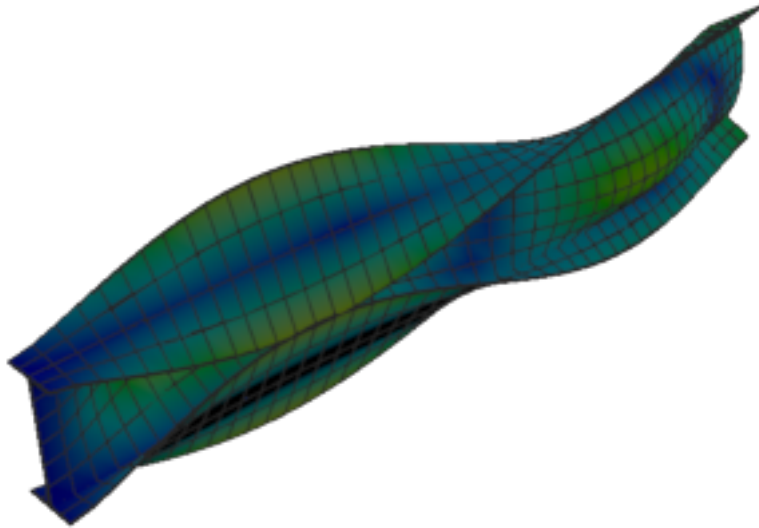


Figure 128: Sesam — mode 7, 142.234 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	142.320	+0.03	799690	2.49e-27	3.45	4.42e-24	-4.99e-14	1.858	-2.10e-12
Sesam	142.234	-0.03	798665	6.03e-28	3.45	4.89e-25	2.46e-14	1.859	-6.99e-13

Mode 8

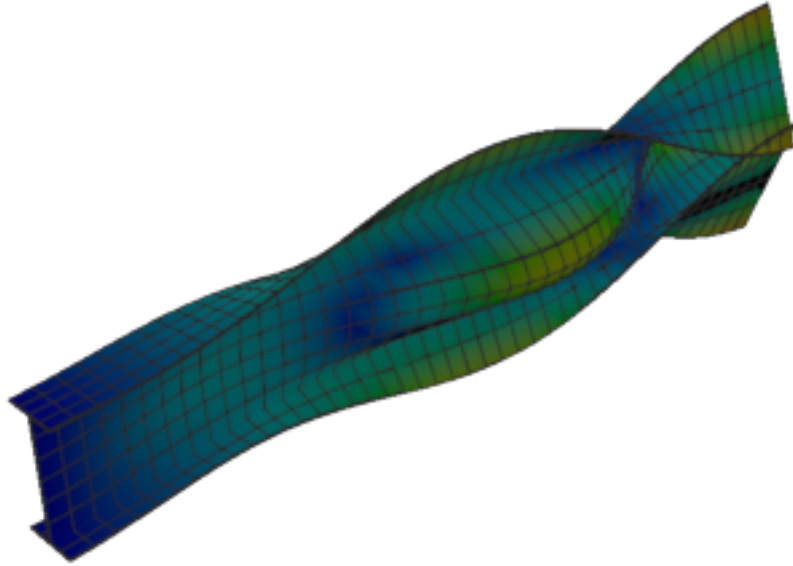


Figure 129: Abaqus — mode 8, 165.849 Hz

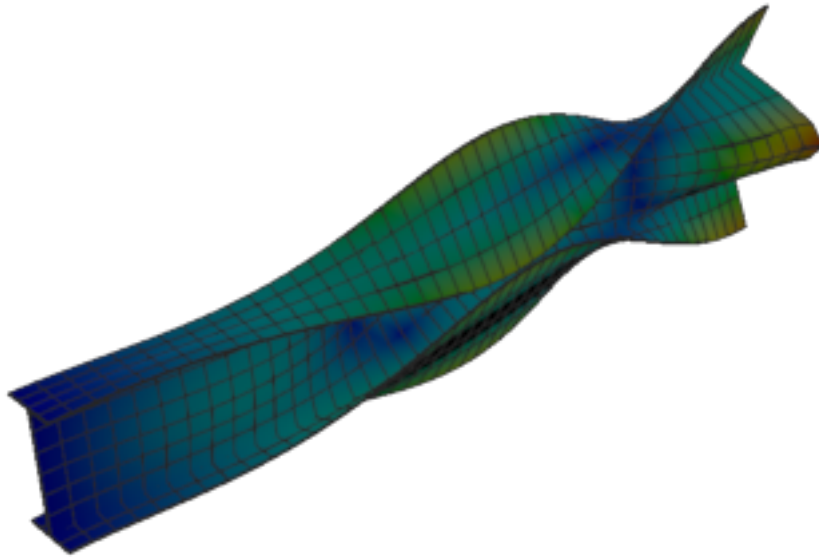


Figure 130: Sesam — mode 8, 165.718 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	165.850	+0.04	1.08589e+06	2.43e-27	5.53	1.06e-23	-4.93e-14	2.351	3.25e-12
Sesam	165.718	-0.04	1.08418e+06	4.51e-28	5.52	2.31e-24	-2.12e-14	-2.350	-1.52e-12

Mode 9

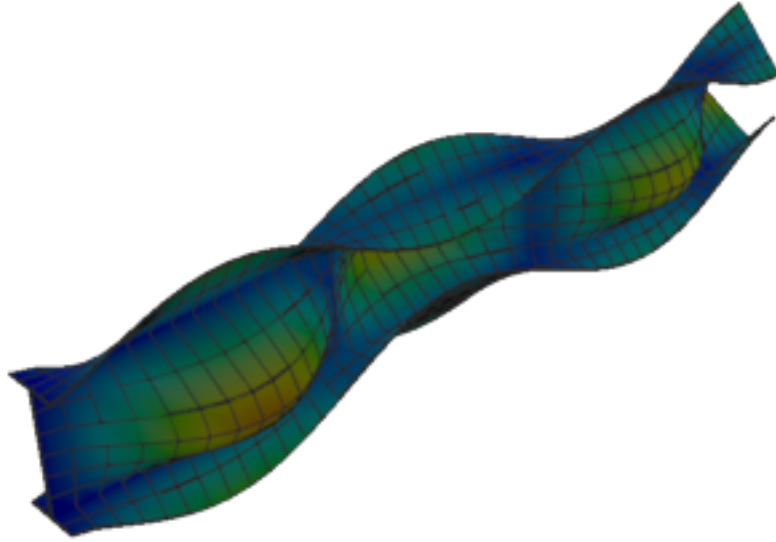


Figure 131: Abaqus — mode 9, 192.184 Hz

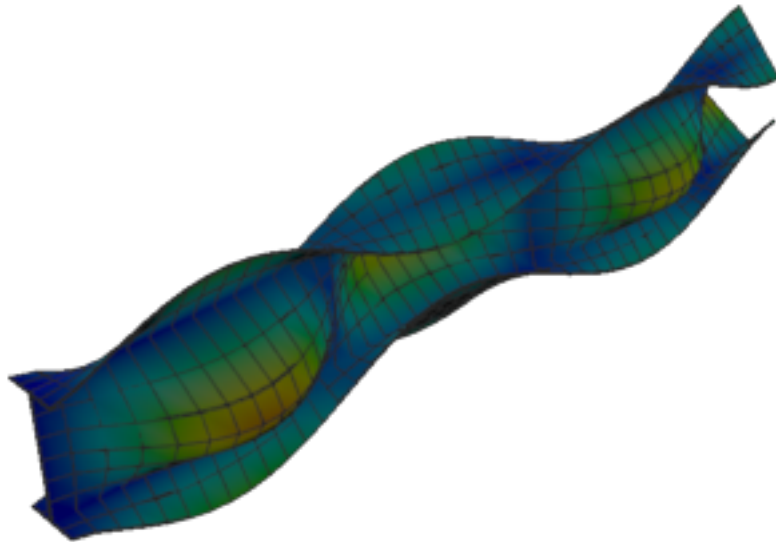


Figure 132: Sesam — mode 9, 191.999 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	192.180	+0.05	1.45812e+06	1.15e-27	0.65	1.20e-25	-3.40e-14	-0.808	3.47e-13
Sesam	191.999	-0.05	1.45531e+06	3.95e-28	0.65	4.22e-27	1.99e-14	-0.809	6.50e-14

Mode 10

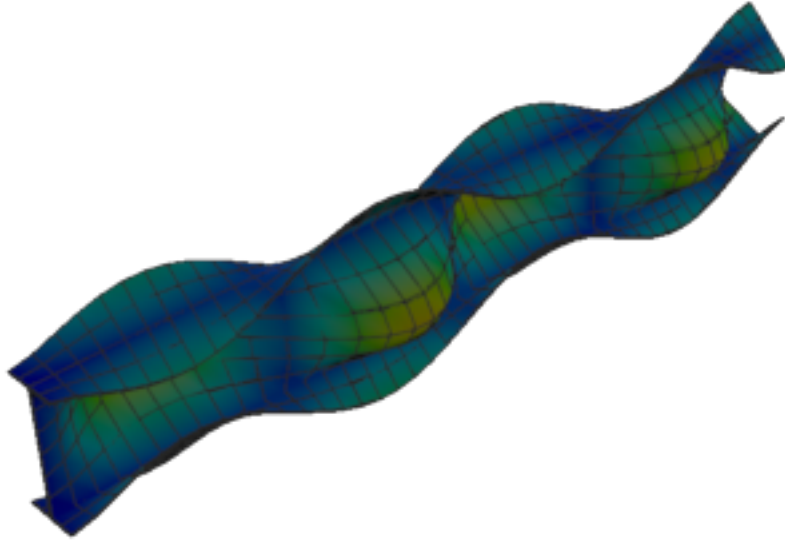


Figure 133: Abaqus — mode 10, 232.867 Hz

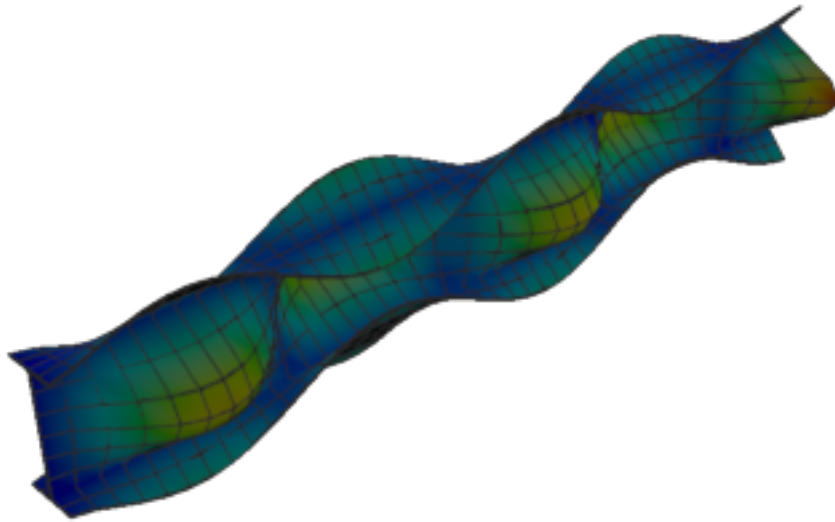


Figure 134: Sesam — mode 10, 232.626 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	232.870	+0.05	2.14079e+06	4.88e-26	1.37	1.33e-23	-2.21e-13	1.170	-3.65e-12
Sesam	232.626	-0.05	2.13637e+06	1.30e-26	1.37	2.70e-25	-1.14e-13	-1.171	-5.20e-13

Mode 11

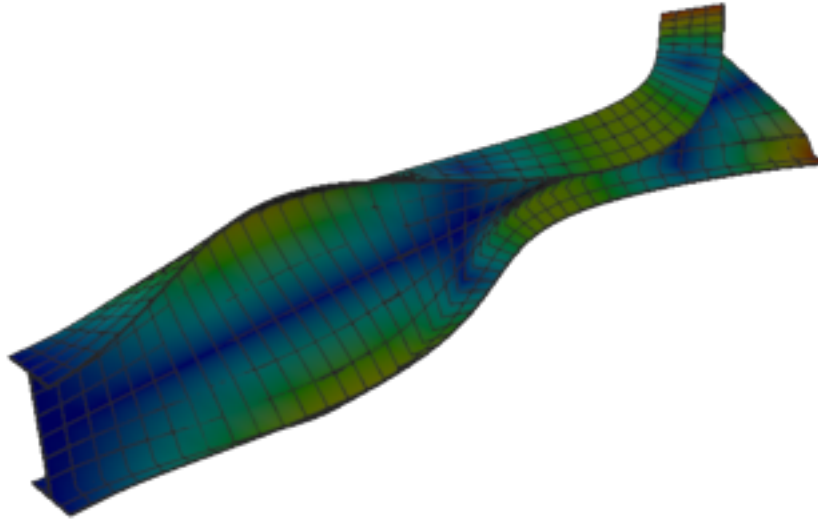


Figure 135: Abaqus — mode 11, 250.173 Hz

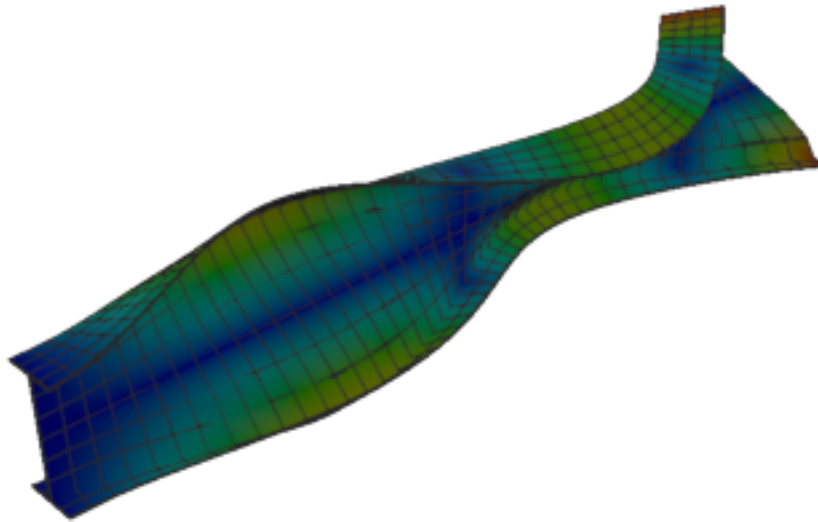


Figure 136: Sesam — mode 11, 250.095 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	250.170	+0.01	2.47082e+06	3.28e-21	3.98e-19	6.25e-19	5.72e-11	6.31e-10	-7.90e-10
Sesam	250.095	-0.01	2.46928e+06	1.10e-19	3.85e-22	2.18e-21	-3.32e-10	-1.96e-11	4.67e-11

Shell, 2nd order, QUAD, reduced integration

Mode 1

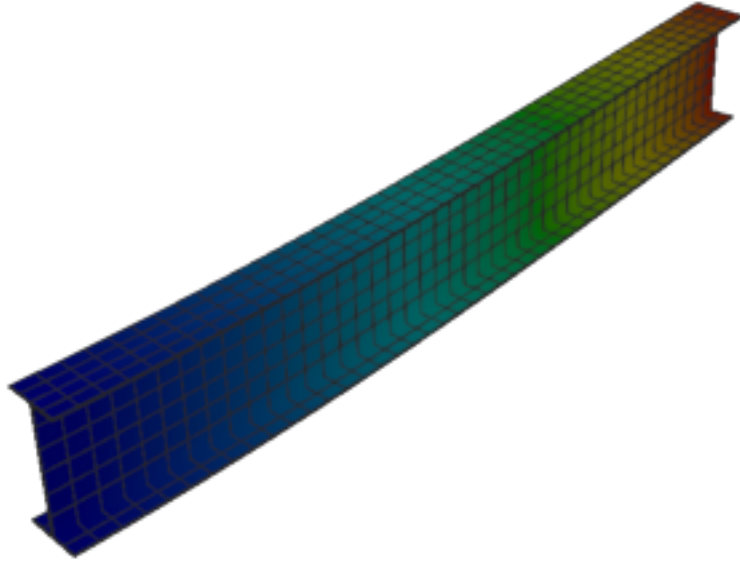


Figure 137: Abaqus — mode 1, 12.758 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.758	6426.1	1.23e-25	119.92	9.18e-25	3.51e-13	10.951	9.58e-13

Mode 2

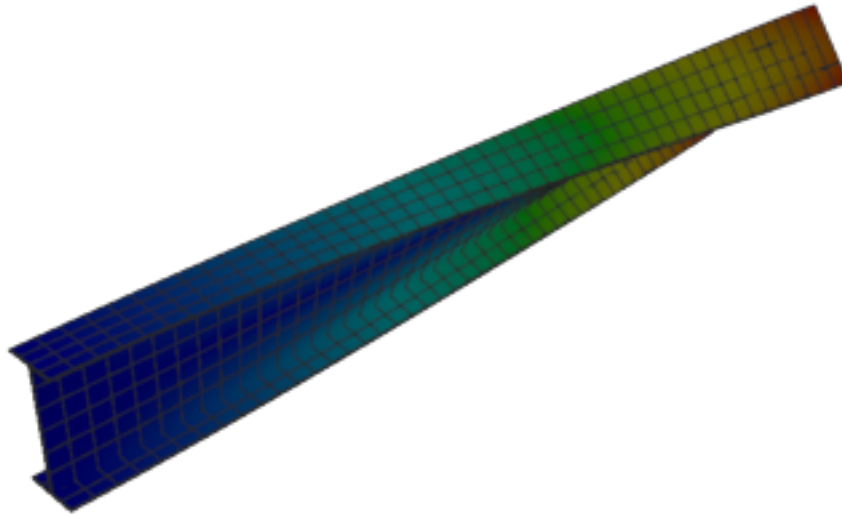


Figure 138: Abaqus — mode 2, 19.486 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	19.486	14990	1.04e-26	4.65e-20	2.40e-23	1.02e-13	2.16e-10	4.90e-12

Mode 3

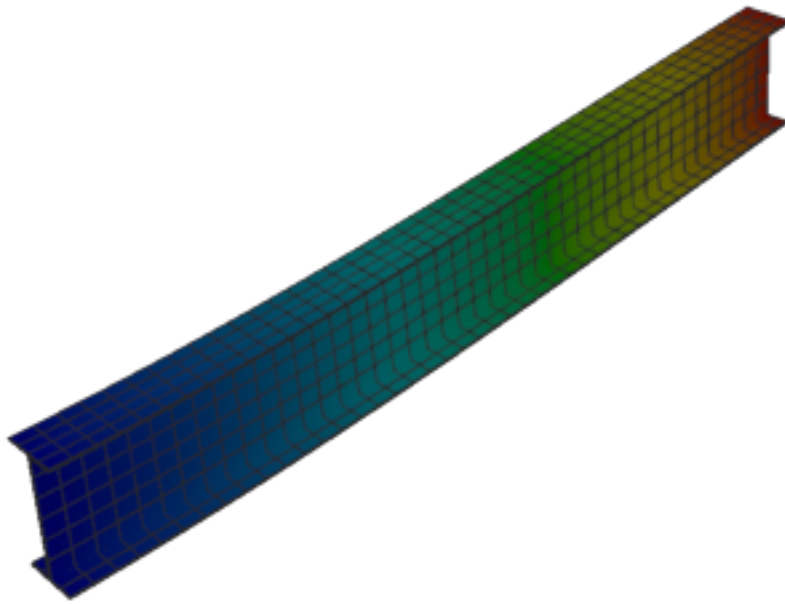


Figure 139: Abaqus — mode 3, 51.998 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.998	106740	5.15e-27	9.66e-26	121.97	7.18e-14	3.11e-13	11.044

Mode 4

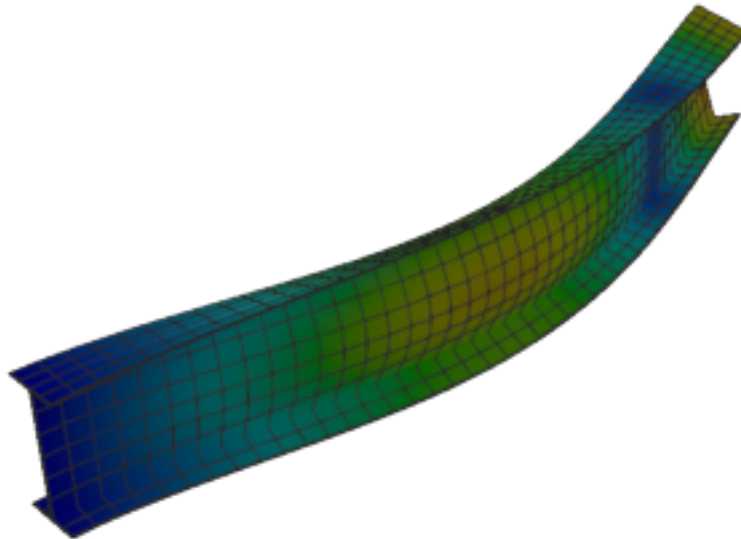


Figure 140: Abaqus — mode 4, 75.149 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	75.149	222949	1.40e-27	36.85	6.29e-24	-3.75e-14	-6.071	2.51e-12

Mode 5

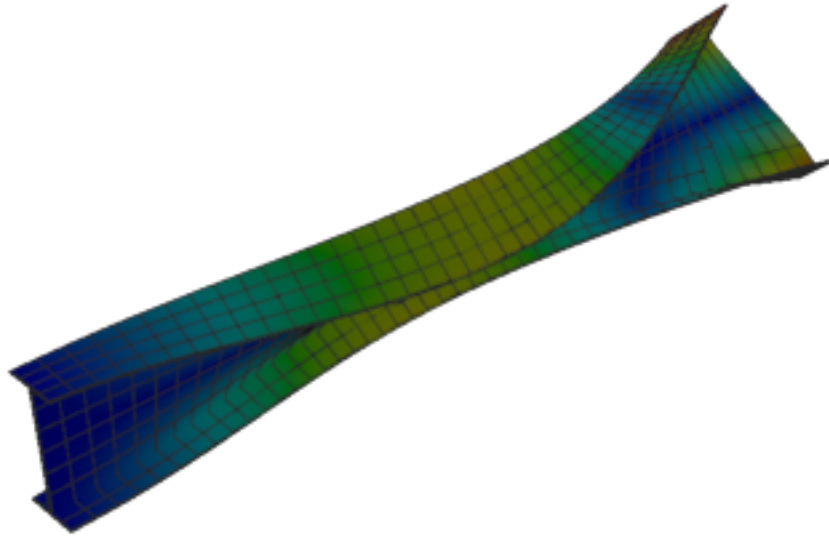


Figure 141: Abaqus — mode 5, 95.920 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	95.920	363224	7.50e-27	2.54e-21	8.04e-25	-8.66e-14	-5.04e-11	-8.97e-13

Mode 6

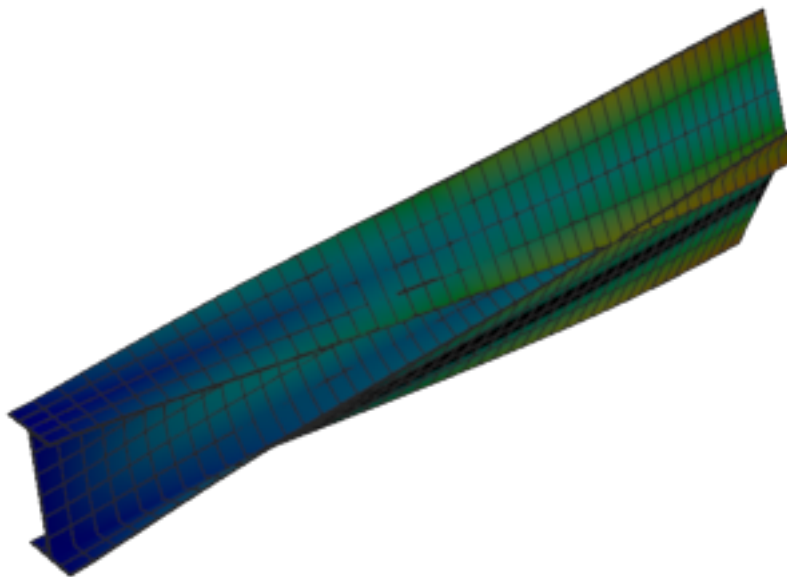


Figure 142: Abaqus — mode 6, 125.001 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	125.000	616856	5.44e-26	0.02	4.78e-23	-2.33e-13	-0.137	6.92e-12

Mode 7

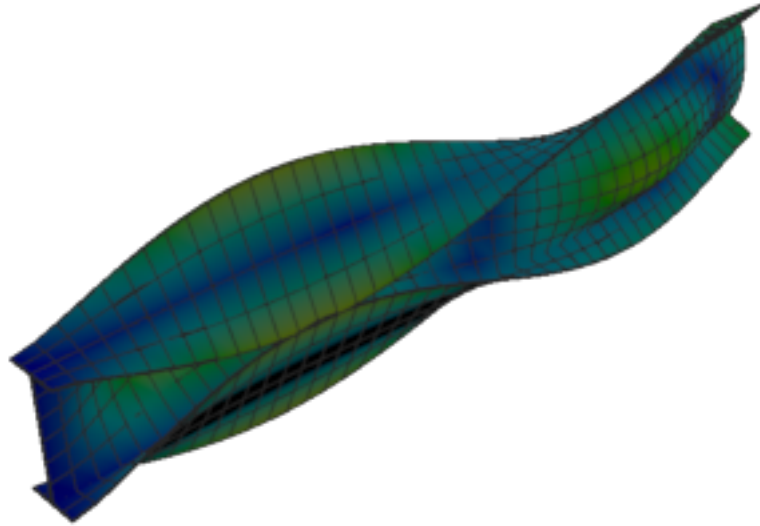


Figure 143: Abaqus — mode 7, 142.325 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	142.320	799690	2.49e-27	3.45	4.42e-24	-4.99e-14	1.858	-2.10e-12

Mode 8

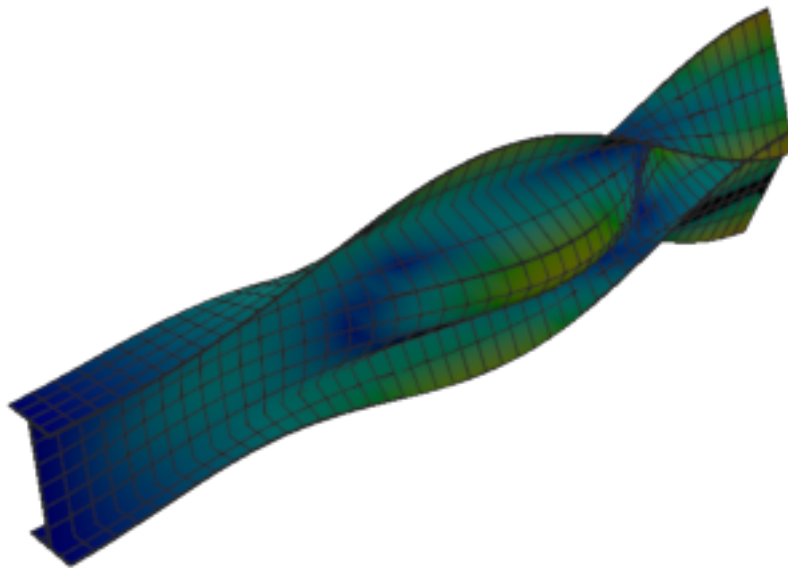


Figure 144: Abaqus — mode 8, 165.849 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	165.850	1.08589e+06	2.43e-27	5.53	1.06e-23	-4.93e-14	2.351	3.25e-12

Mode 9

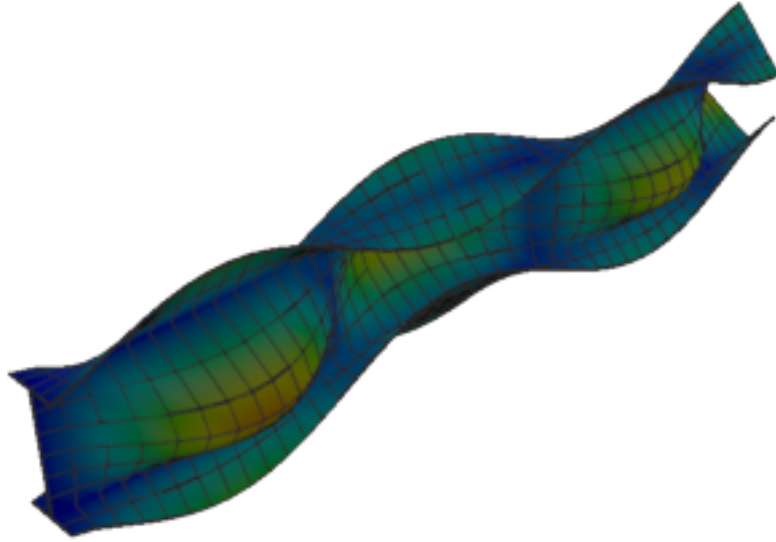


Figure 145: Abaqus — mode 9, 192.184 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	192.180	1.45812e+06	1.15e-27	0.65	1.20e-25	-3.40e-14	-0.808	3.47e-13

Mode 10

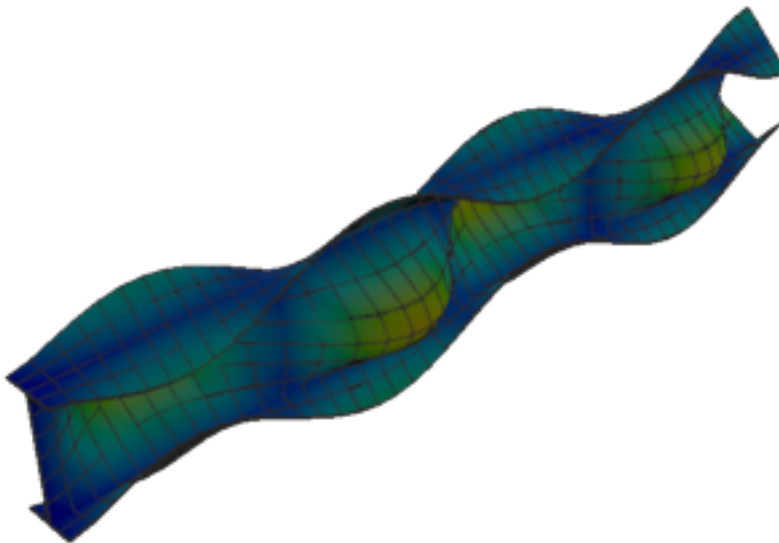


Figure 146: Abaqus — mode 10, 232.867 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	232.870	2.14079e+06	4.88e-26	1.37	1.33e-23	-2.21e-13	1.170	-3.65e-12

Mode 11

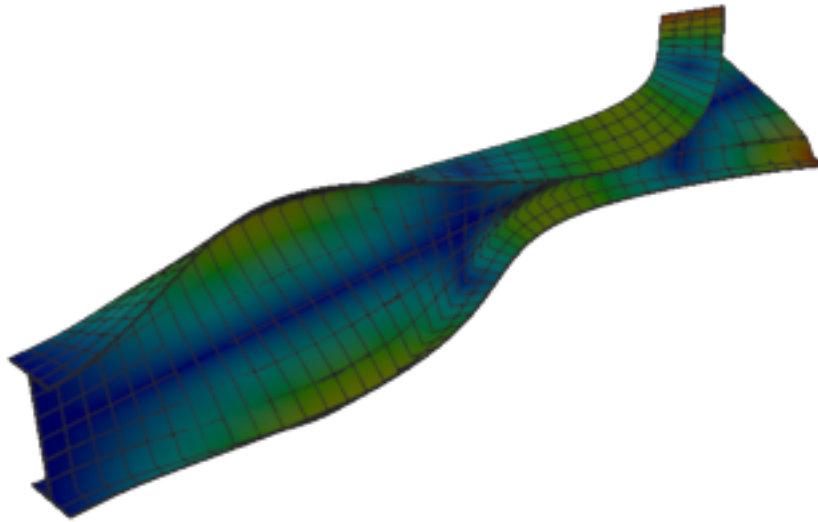


Figure 147: Abaqus — mode 11, 250.173 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	250.170	2.47082e+06	3.28e-21	3.98e-19	6.25e-19	5.72e-11	6.31e-10	-7.90e-10

Solid, 1st order, TET

Mode 1

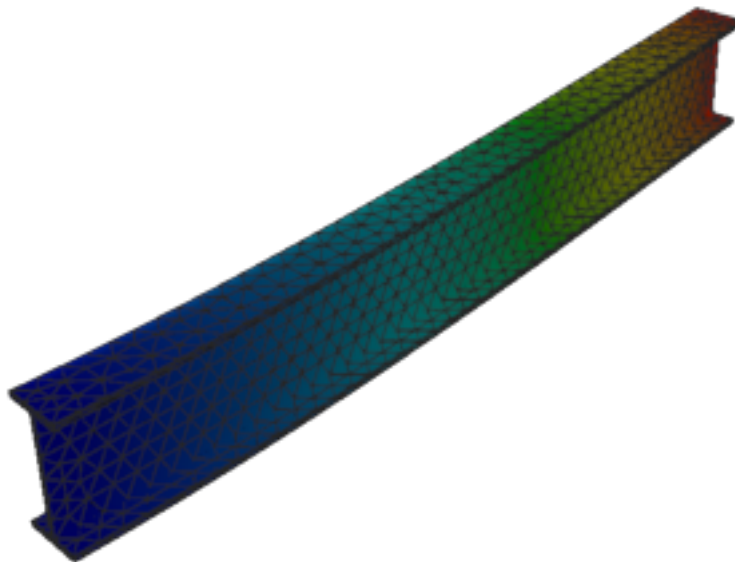


Figure 148: Abaqus — mode 1, 15.790 Hz

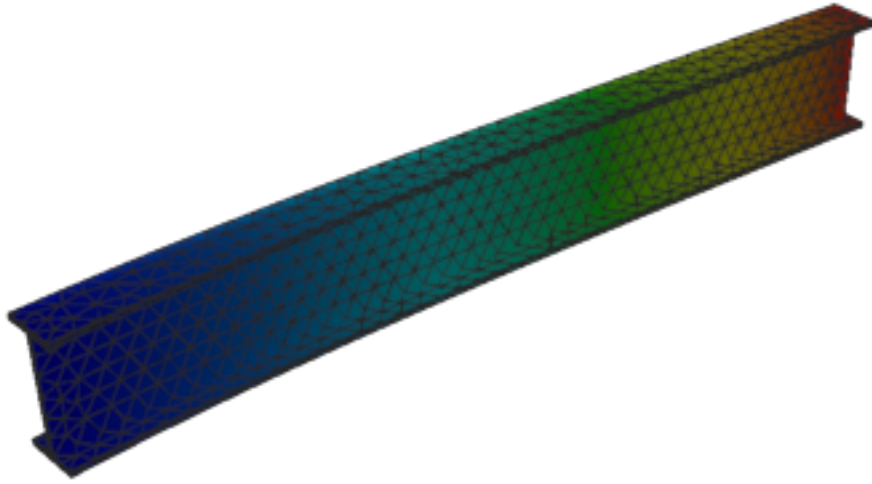


Figure 149: Sesam — mode 1, 15.793 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	15.790	-0.01	9842.9	2.50e-14	117.47	2.82e-04	1.58e-07	10.838	-0.017
Sesam	15.793	+0.01	9846.92	5.82e-13	117.52	2.82e-04	7.63e-07	-10.841	0.017

Mode 2

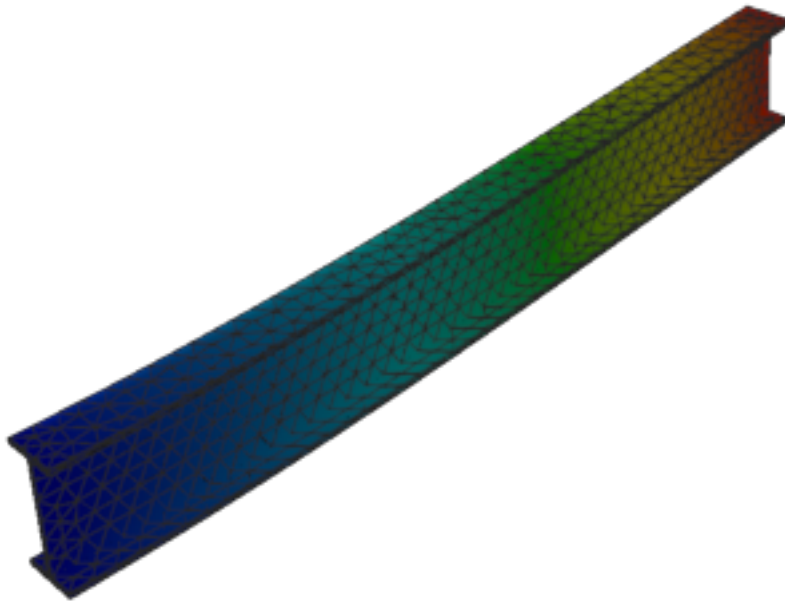


Figure 150: Abaqus — mode 2, 51.532 Hz

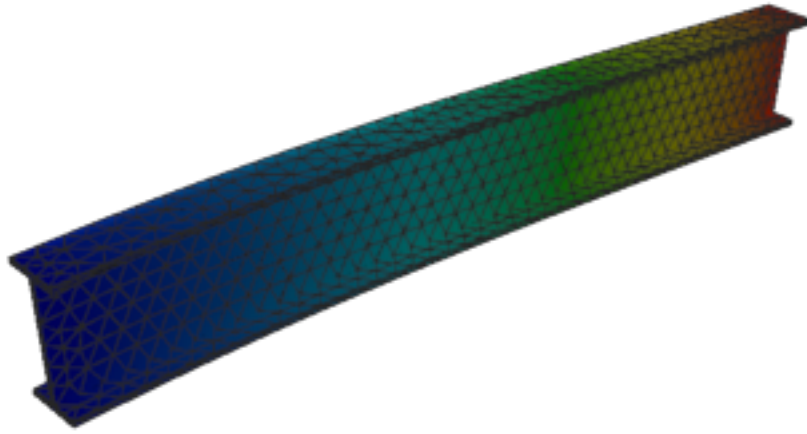


Figure 151: Sesam — mode 2, 51.542 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	51.532	-0.01	104836	1.44e-08	7.90e-04	118.25	1.20e-04	0.028	10.874
Sesam	51.542	+0.01	104877	1.53e-08	7.86e-04	118.29	-1.24e-04	-0.028	-10.876

Mode 3

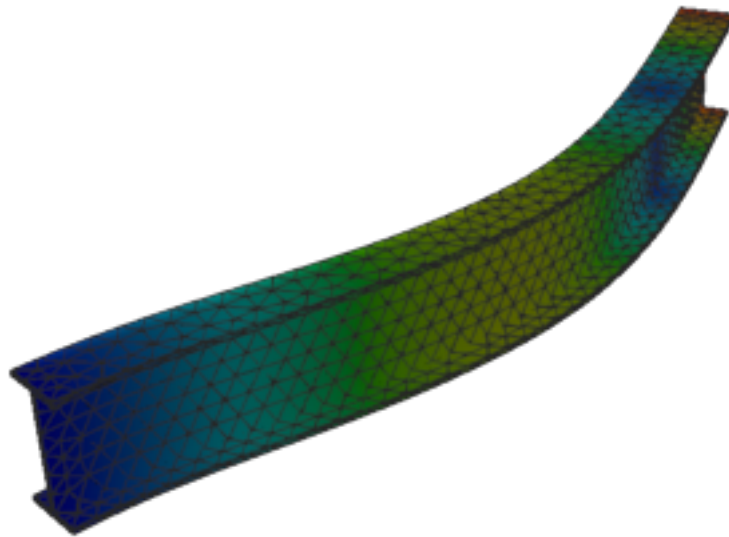


Figure 152: Abaqus — mode 3, 97.588 Hz

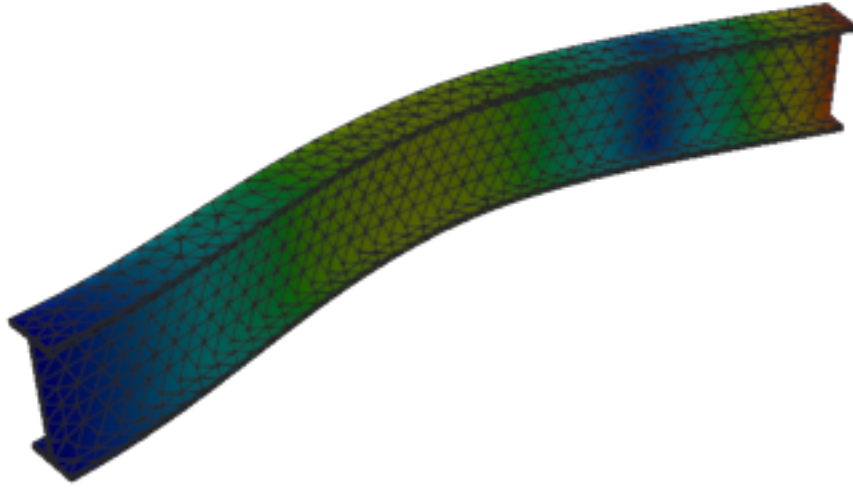


Figure 153: Sesam — mode 3, 97.731 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	97.588	-0.07	375967	4.61e-08	34.91	3.71e-04	-2.15e-04	-5.909	0.019
Sesam	97.731	+0.07	377075	4.30e-08	34.94	3.65e-04	2.07e-04	5.911	-0.019

Mode 4

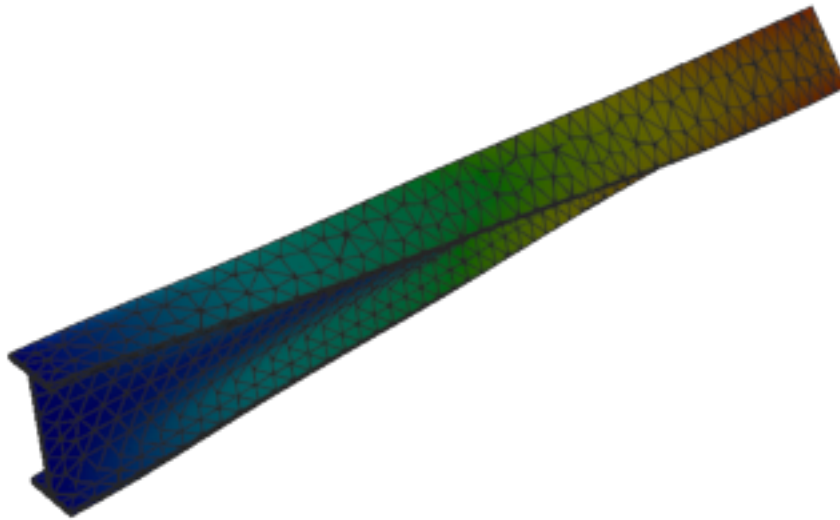


Figure 154: Abaqus — mode 4, 104.803 Hz

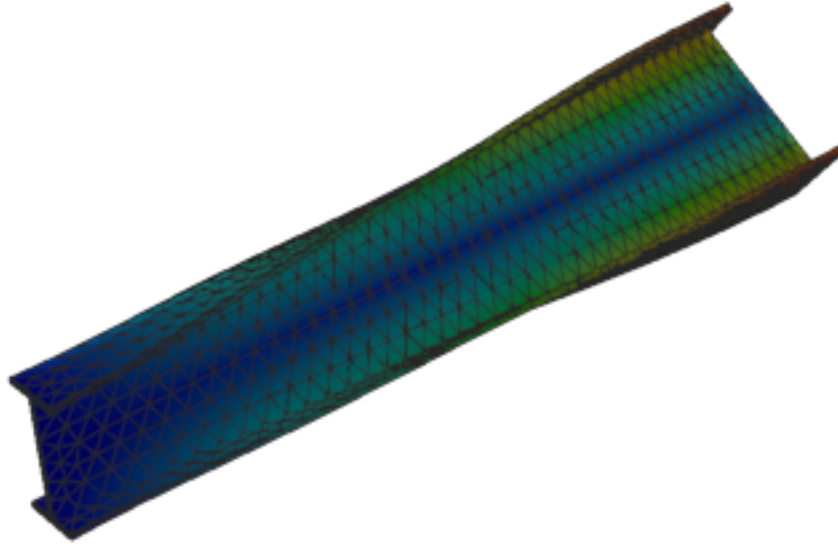


Figure 155: Sesam — mode 4, 105.691 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	104.800	-0.42	433617	6.83e-06	0.01	1.07e-05	0.003	-0.075	0.003
Sesam	105.691	+0.42	440993	6.99e-06	4.82e-03	1.08e-05	-0.003	0.069	-0.003

Mode 5

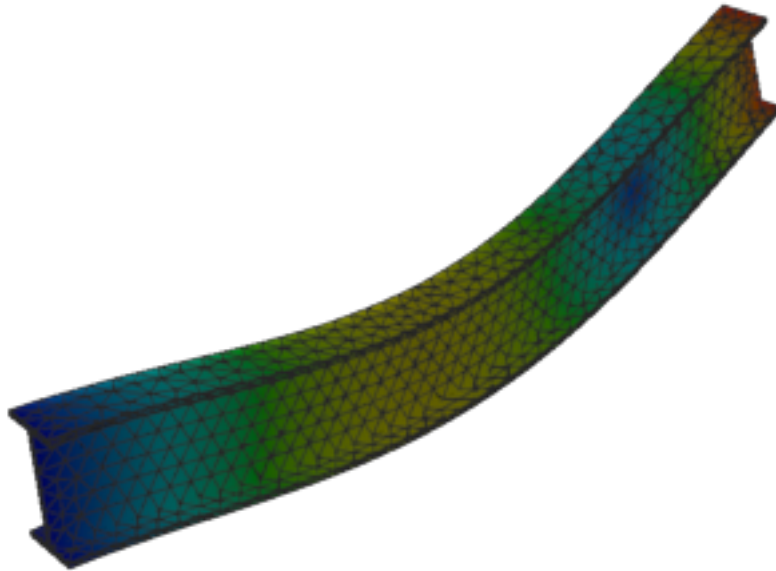


Figure 156: Abaqus — mode 5, 260.590 Hz

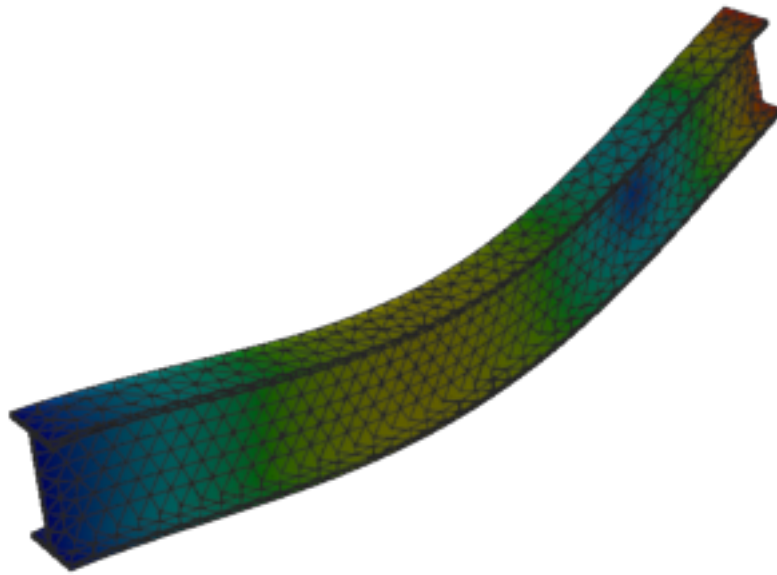


Figure 157: Sesam — mode 5, 260.887 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	260.590	-0.06	2.68086e+06	3.30e-07	0.02	39.75	-0.001	0.132	-6.305
Sesam	260.887	+0.06	2.68699e+06	3.61e-07	0.01	39.76	-0.001	0.122	-6.305

Mode 6

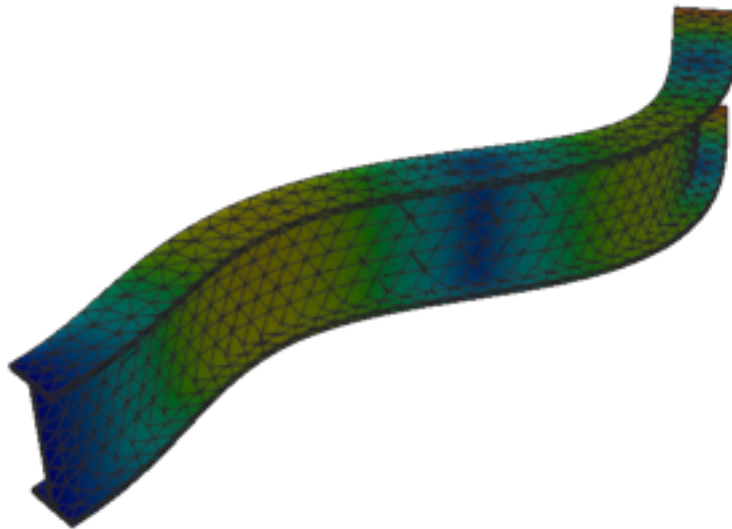


Figure 158: Abaqus — mode 6, 266.263 Hz

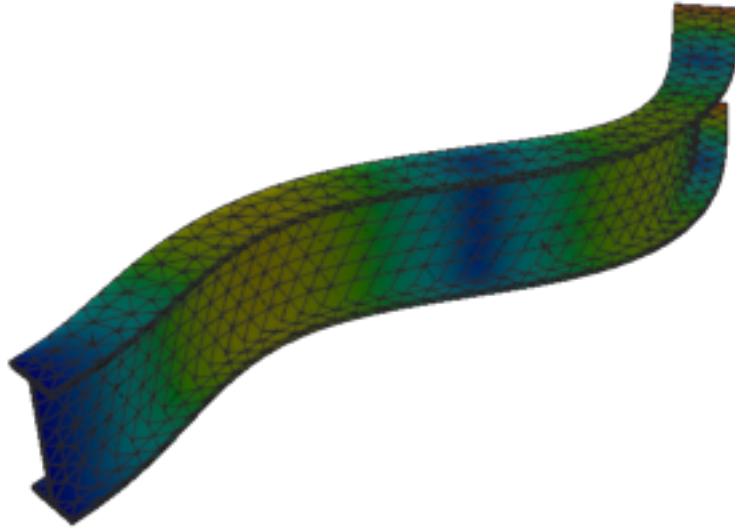


Figure 159: Sesam — mode 6, 267.131 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	266.260	-0.16	2.79886e+06	1.72e-08	13.24	0.05	1.31e-04	3.638	0.226
Sesam	267.131	+0.16	2.81714e+06	1.49e-08	13.26	0.04	1.22e-04	3.642	0.207

Mode 7

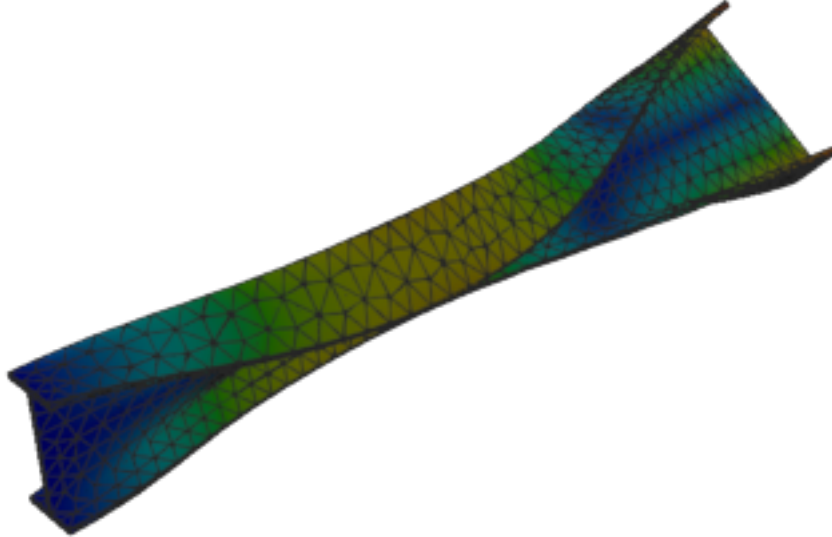


Figure 160: Abaqus — mode 7, 285.051 Hz

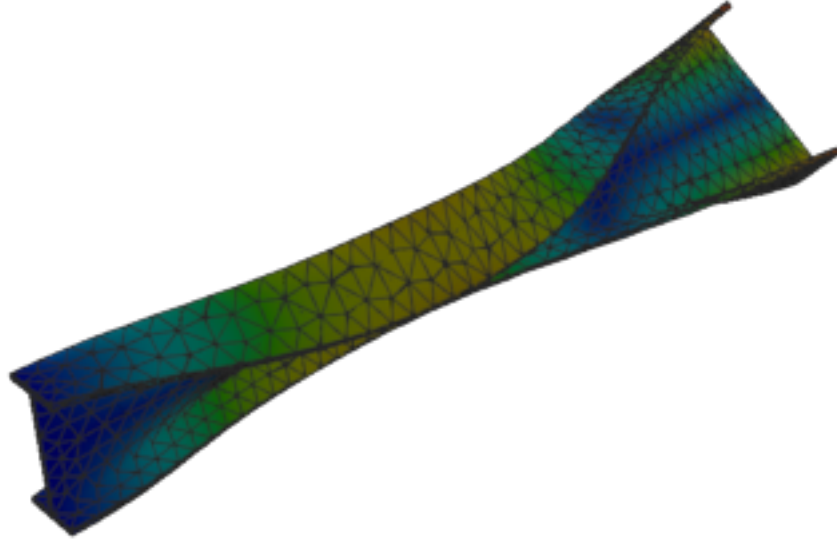


Figure 161: Sesam — mode 7, 287.461 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	285.050	-0.42	3.20779e+06	1.44e-07	9.28e-04	1.25e-03	3.79e-04	0.030	-0.035
Sesam	287.461	+0.42	3.26225e+06	1.26e-07	7.47e-04	1.07e-03	3.54e-04	0.027	-0.033

Mode 8

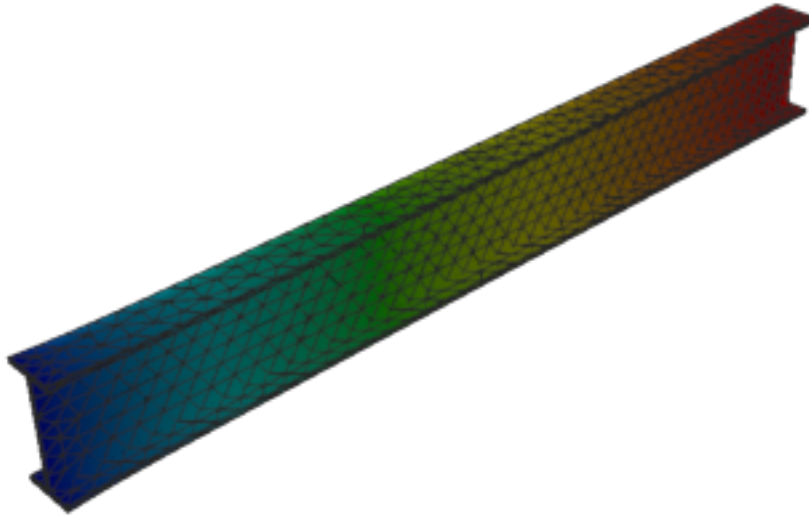


Figure 162: Abaqus — mode 8, 432.310 Hz

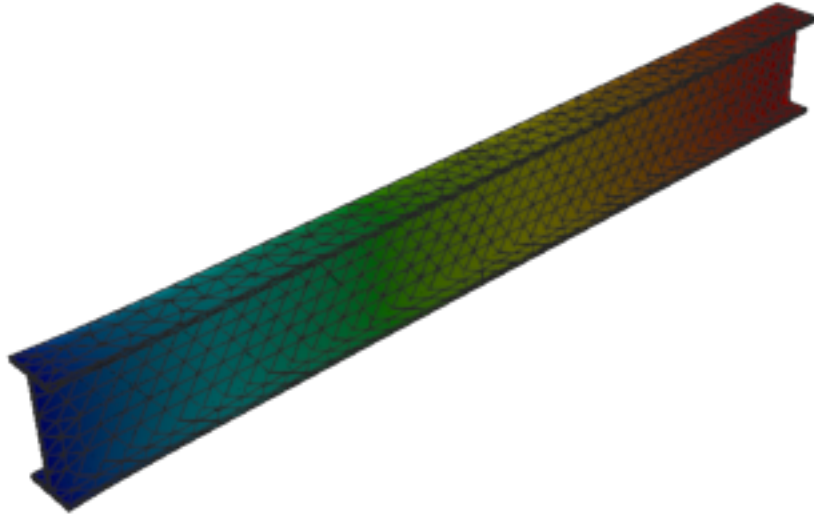


Figure 163: Sesam — mode 8, 432.347 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	432.310	-4.31e-03	7.37819e+06	153.38	2.06e-06	3.31e-08	12.385	-0.001	1.82e-04
Sesam	432.347	4.31e-03	7.37947e+06	153.37	1.91e-06	2.88e-08	12.384	-0.001	1.70e-04

Mode 9

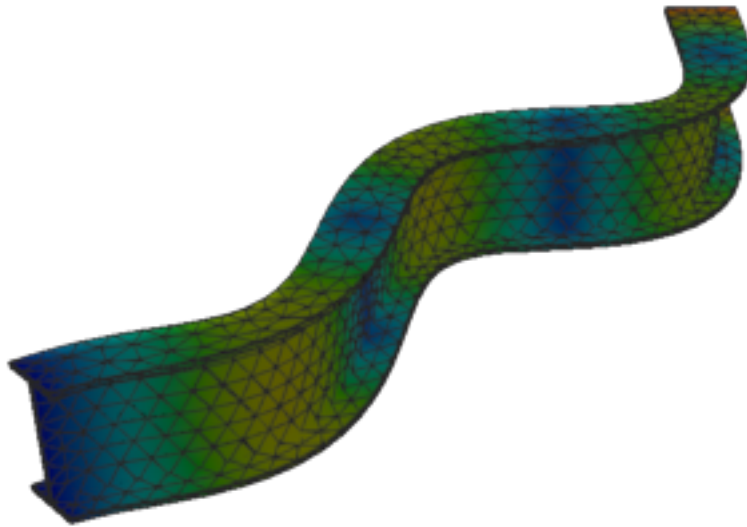


Figure 164: Abaqus — mode 9, 500.864 Hz

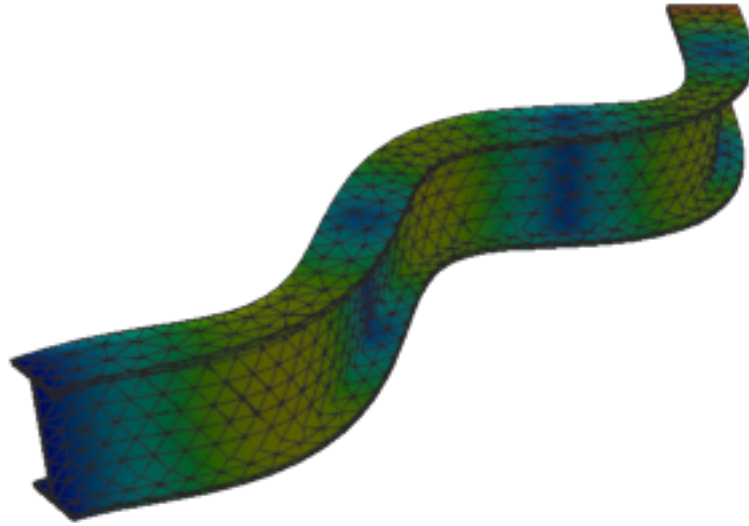


Figure 165: Sesam — mode 9, 503.862 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	500.860	-0.30	9.90373e+06	3.39e-05	6.33	4.73e-05	-0.006	-2.515	0.007
Sesam	503.862	+0.30	1.00226e+07	3.01e-05	6.34	4.92e-05	-0.005	-2.518	0.007

Mode 10

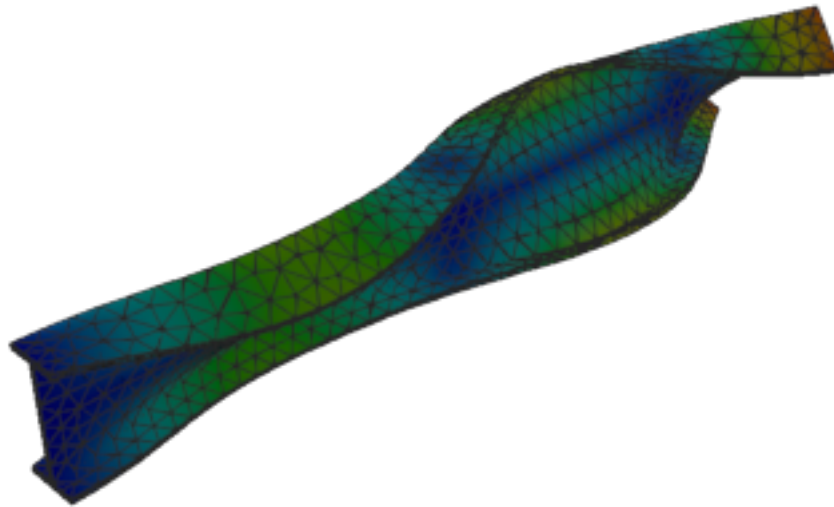


Figure 166: Abaqus — mode 10, 534.263 Hz

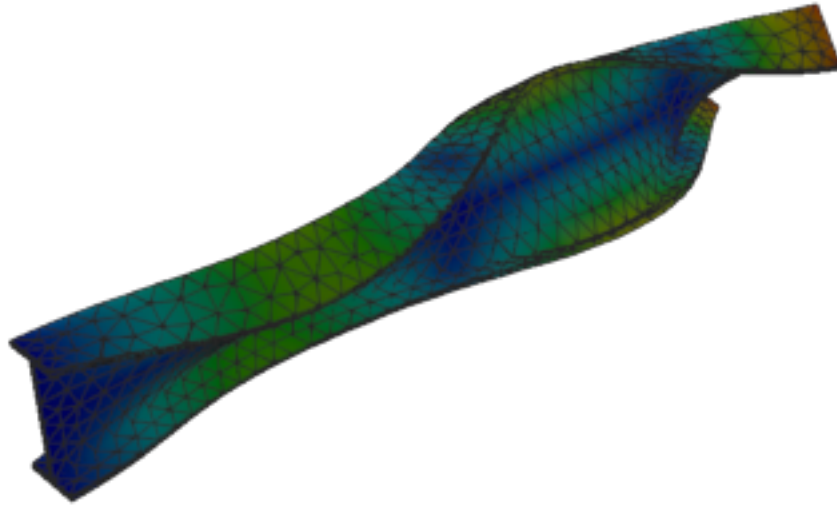


Figure 167: Sesam — mode 10, 539.506 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	534.260	-0.49	1.12686e+07	2.60e-04	2.77e-04	6.63e-06	-0.016	-0.017	0.003
Sesam	539.506	+0.49	1.14909e+07	2.36e-04	2.31e-04	6.55e-06	-0.015	-0.015	0.003

Mode 11

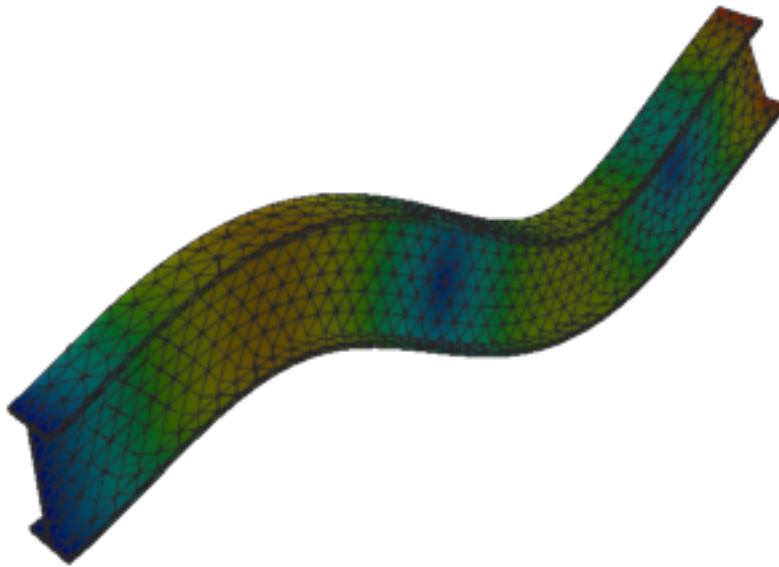


Figure 168: Abaqus — mode 11, 596.780 Hz

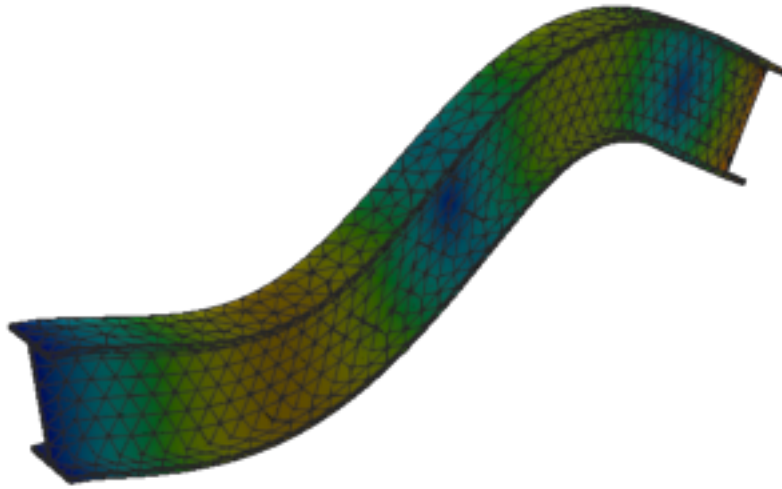


Figure 169: Sesam — mode 11, 598.200 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	596.780	-0.12	1.40601e+07	4.55e-07	1.33e-07	12.80	-0.001	-3.65e-04	3.578
Sesam	598.200	+0.12	1.41271e+07	4.36e-07	3.62e-08	12.80	0.001	1.90e-04	-3.578

Solid, 1st order, HEX

Mode 1

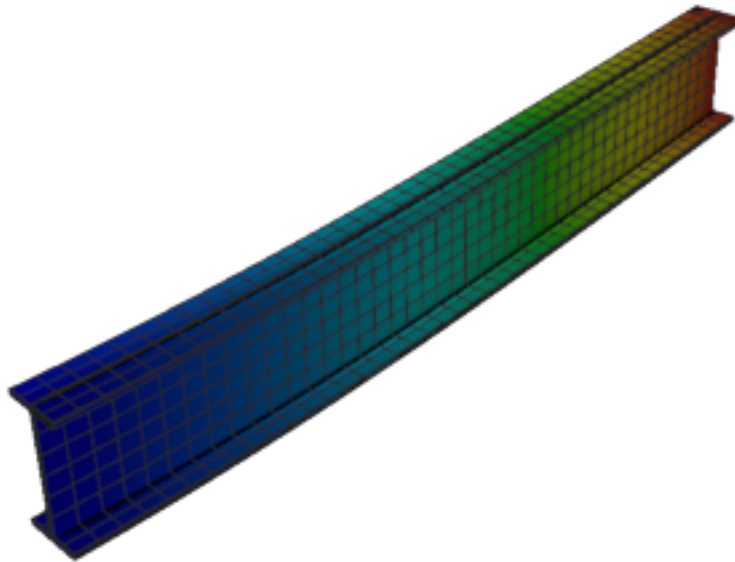


Figure 170: Abaqus — mode 1, 13.435 Hz

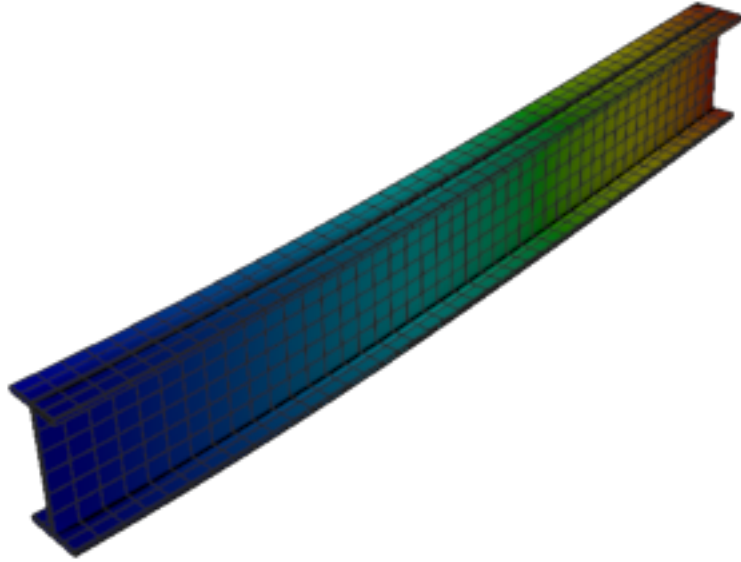


Figure 171: Sesam — mode 1, 12.977 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	13.435	+1.74	7125.8	4.92e-29	116.39	5.47e-23	-7.01e-15	10.788	-7.39e-12
Sesam	12.977	-1.74	6647.9	8.06e-25	116.43	1.16e-20	-8.98e-13	10.790	1.08e-10

Mode 2

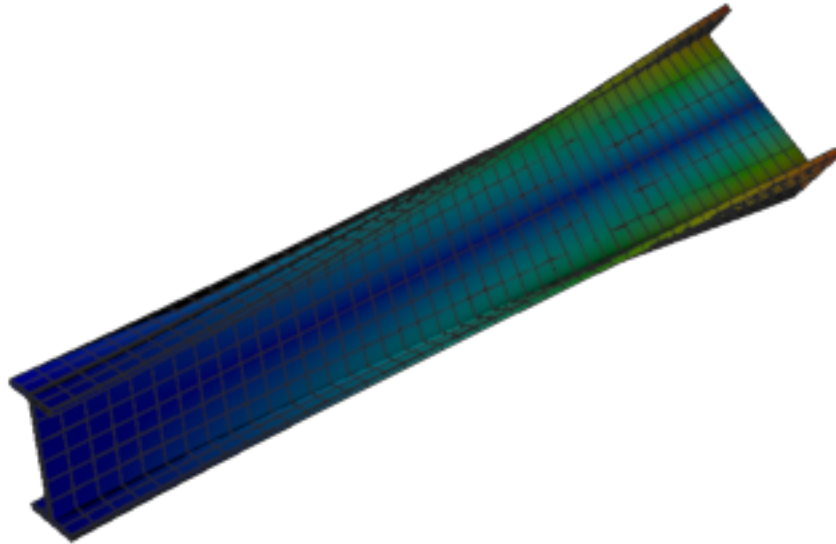


Figure 172: Abaqus — mode 2, 20.731 Hz

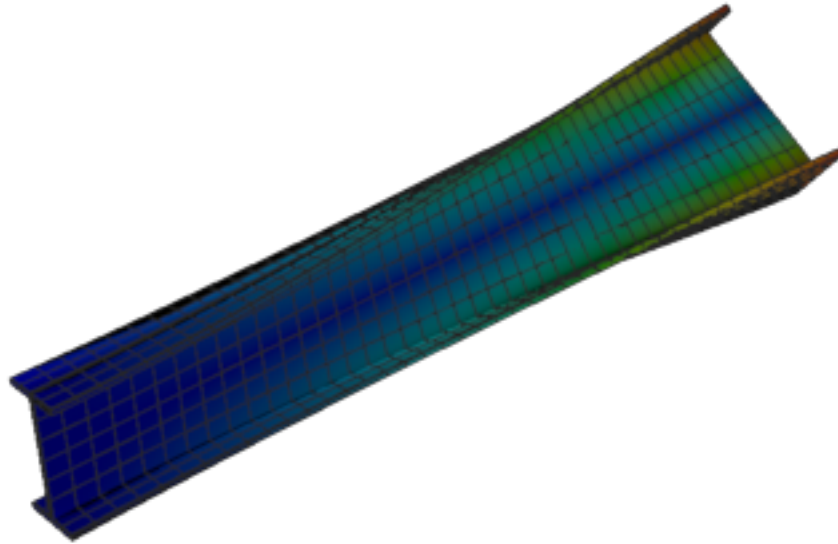


Figure 173: Sesam — mode 2, 20.302 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	20.731	+1.05	16967	7.03e-26	1.48e-18	2.87e-22	2.65e-13	1.22e-09	-1.69e-11
Sesam	20.302	-1.05	16271.1	2.93e-27	2.21e-19	3.64e-20	-5.41e-14	-4.70e-10	1.91e-10

Mode 3

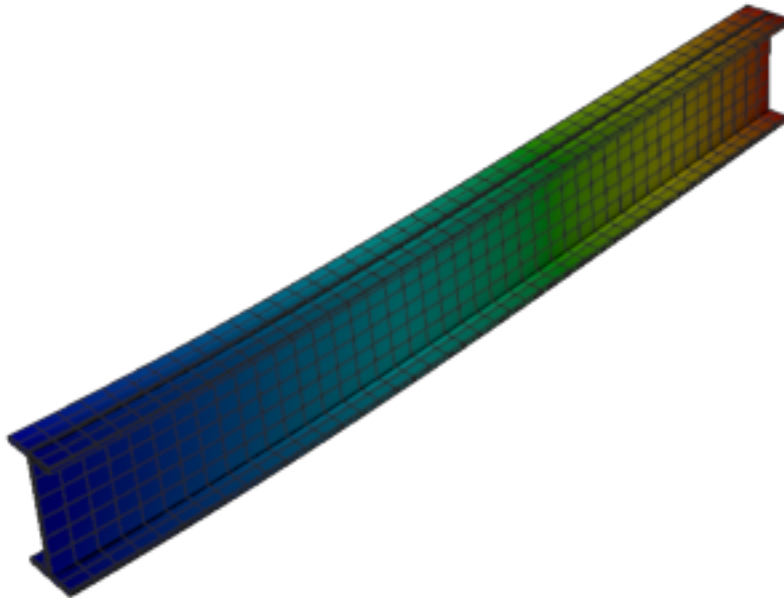


Figure 174: Abaqus — mode 3, 50.678 Hz

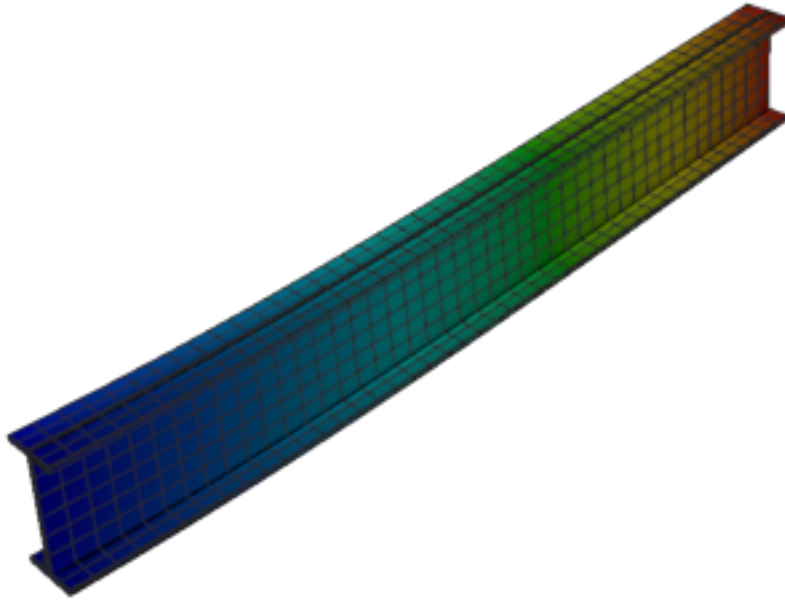


Figure 175: Sesam — mode 3, 50.618 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.678	+0.06	101392	1.09e-25	2.57e-22	118.20	-3.30e-13	1.60e-11	10.872
Sesam	50.618	-0.06	101151	1.08e-24	8.70e-21	118.29	-1.04e-12	-9.33e-11	10.876

Mode 4

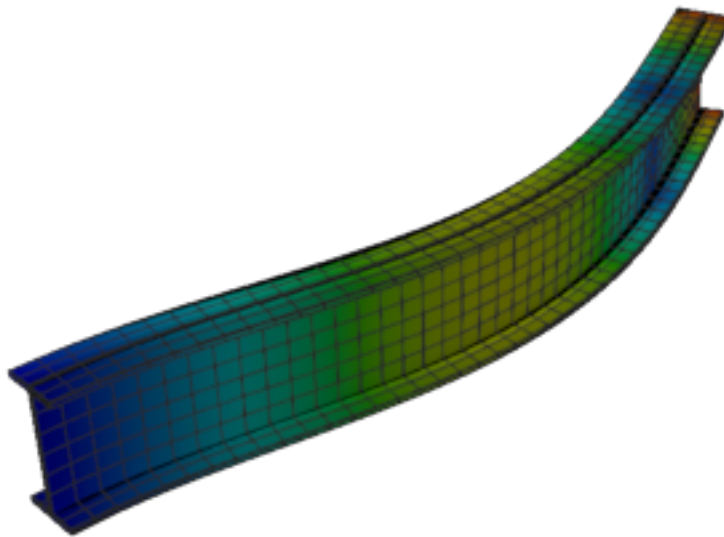


Figure 176: Abaqus — mode 4, 82.799 Hz

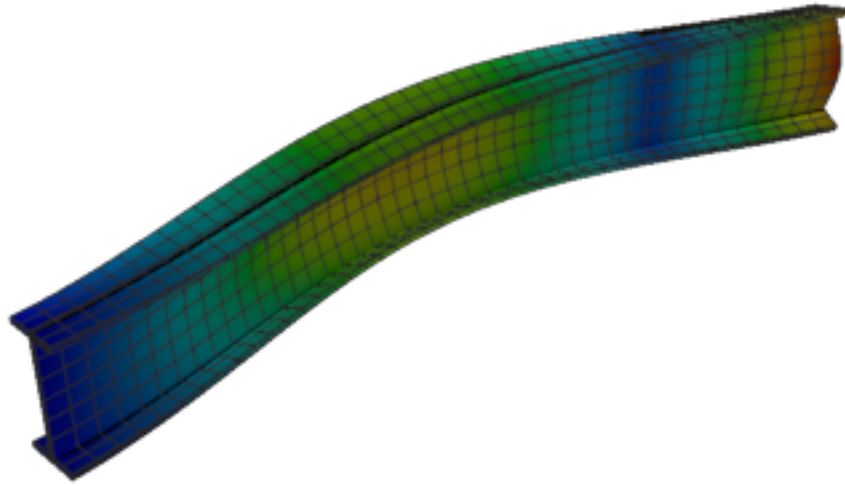


Figure 177: Sesam — mode 4, 77.392 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	82.799	+3.38	270652	7.52e-26	36.02	2.70e-22	-2.74e-13	-6.002	1.64e-11
Sesam	77.392	-3.38	236458	6.94e-26	35.94	6.82e-22	-2.63e-13	5.995	-2.61e-11

Mode 5

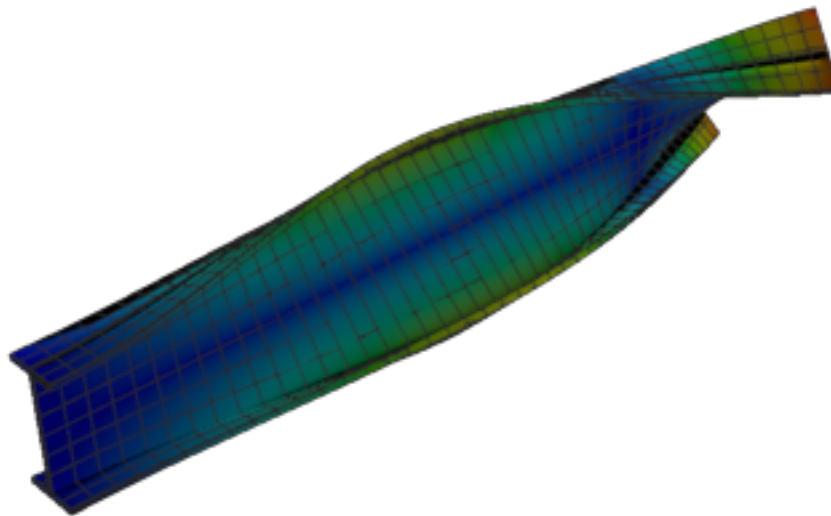


Figure 178: Abaqus — mode 5, 100.195 Hz

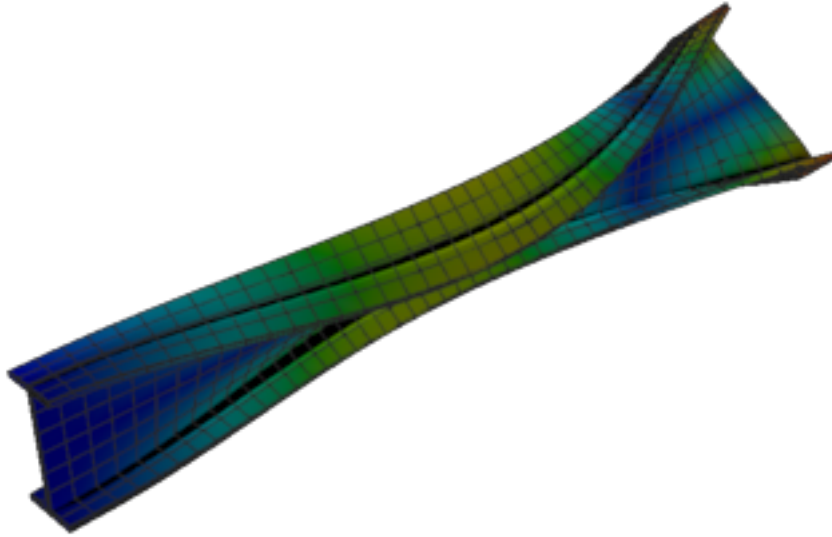


Figure 179: Sesam — mode 5, 98.119 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	100.190	+1.04	396325	4.10e-26	6.87e-21	7.52e-23	2.03e-13	-8.29e-11	8.67e-12
Sesam	98.119	-1.04	380068	1.62e-25	2.53e-21	7.29e-23	4.03e-13	-5.03e-11	-8.54e-12

Mode 6

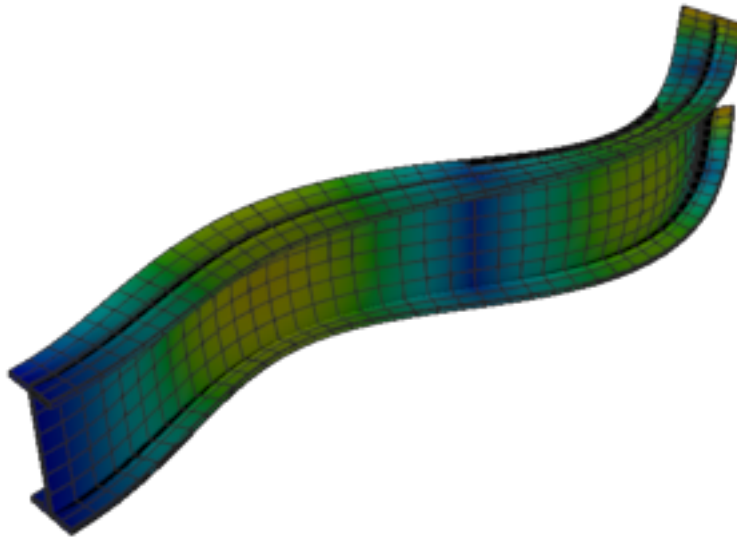


Figure 180: Abaqus — mode 6, 223.139 Hz

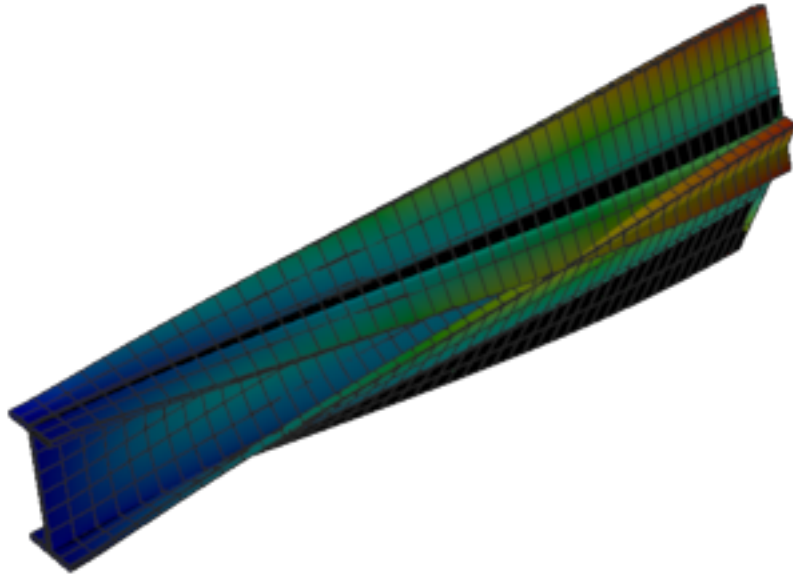


Figure 181: Sesam — mode 6, 133.016 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	223.140	+25.30	1.96567e+06	2.33e-25	12.40	1.64e-23	-4.83e-13	3.522	4.05e-12
Sesam	133.016	-25.30	698501	3.07e-26	0.01	1.44e-20	-1.75e-13	-0.114	1.20e-10

Mode 7

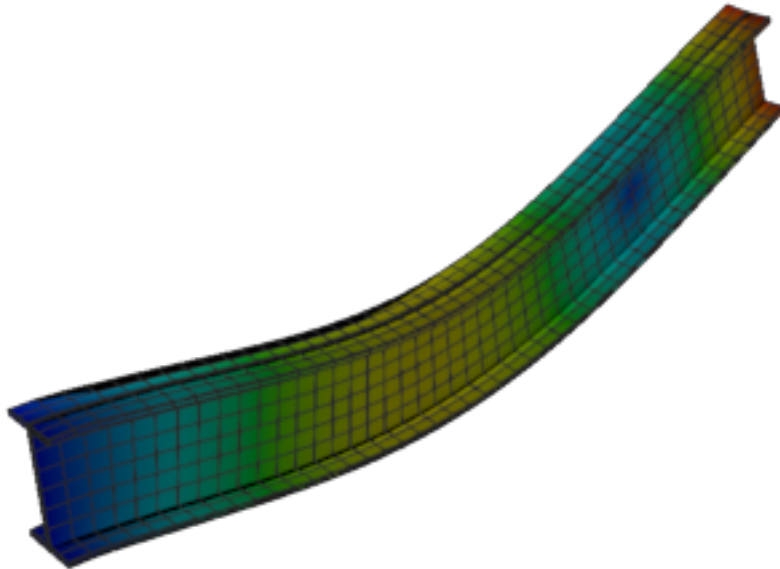


Figure 182: Abaqus — mode 7, 254.984 Hz

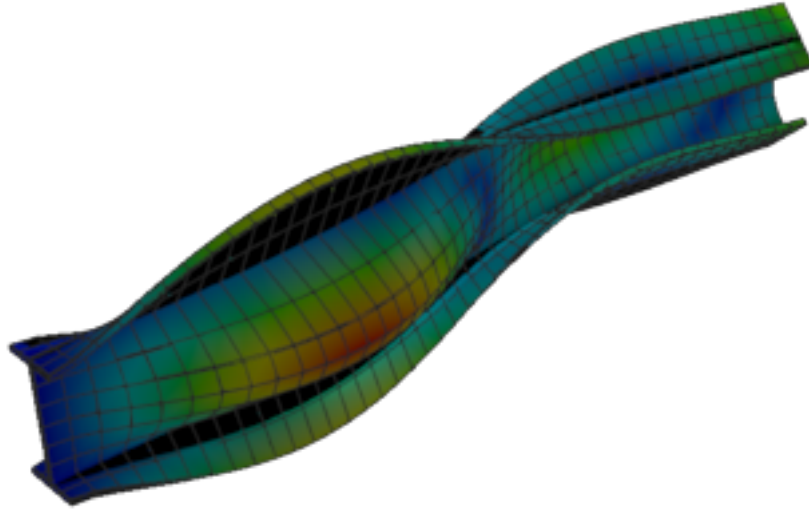


Figure 183: Sesam — mode 7, 153.833 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	254.980	+24.74	2.56676e+06	2.24e-25	2.85e-24	40.01	-4.74e-13	1.69e-12	-6.326
Sesam	153.833	-24.74	934235	3.75e-25	3.20	1.37e-21	-6.13e-13	-1.788	3.70e-11

Mode 8

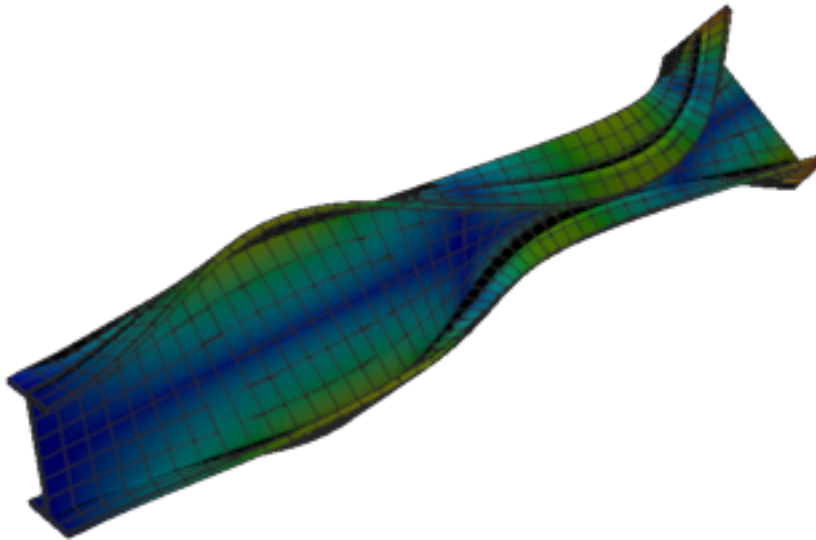


Figure 184: Abaqus — mode 8, 260.095 Hz

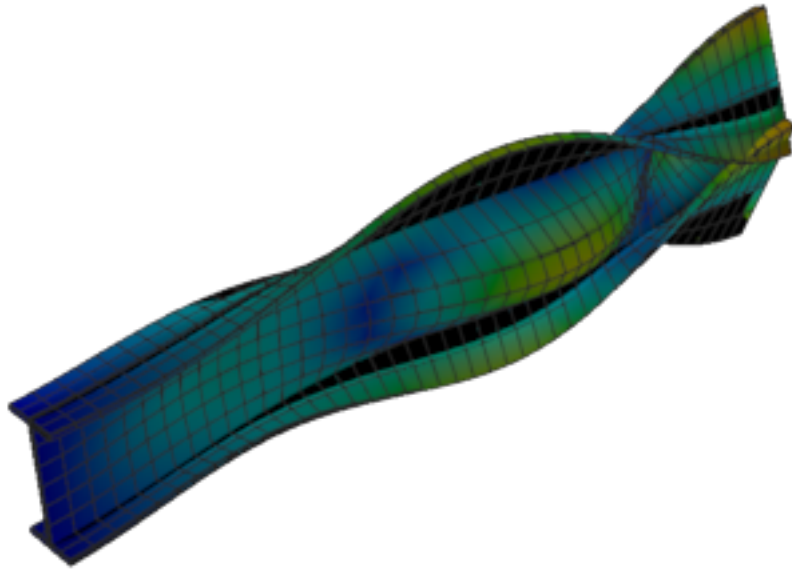


Figure 185: Sesam — mode 8, 178.565 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	260.100	+18.59	2.6707e+06	2.66e-26	6.24e-23	3.82e-21	-1.63e-13	7.90e-12	6.18e-11
Sesam	178.565	-18.59	1.25879e+06	3.19e-27	5.71	3.11e-21	-5.65e-14	2.390	5.58e-11

Mode 9

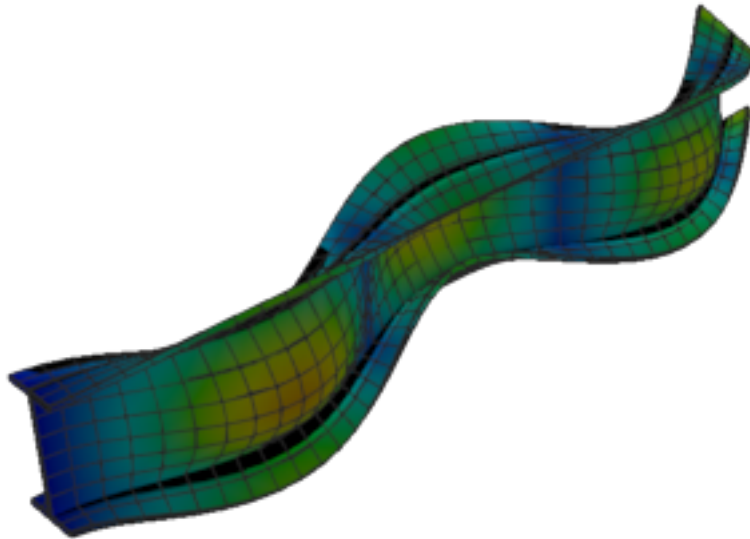


Figure 186: Abaqus — mode 9, 396.567 Hz

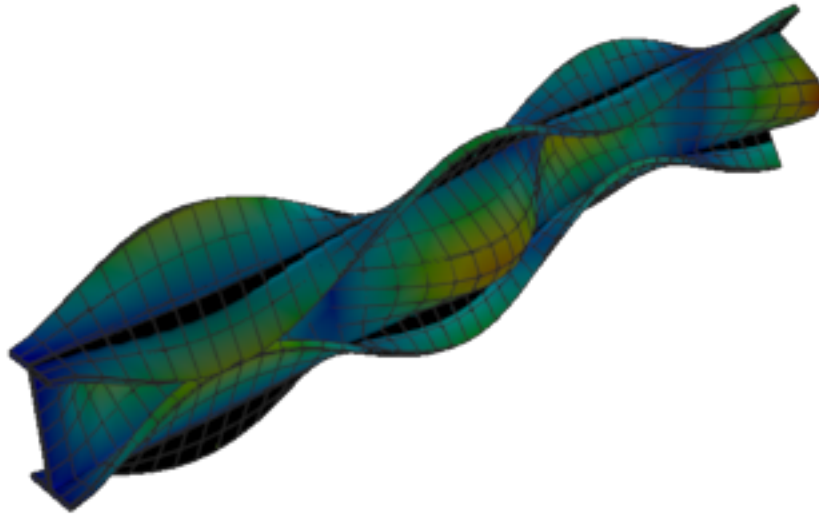


Figure 187: Sesam — mode 9, 214.689 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	396.570	+29.76	6.20858e+06	2.52e-22	5.69	2.13e-23	1.59e-11	-2.385	4.61e-12
Sesam	214.689	-29.76	1.81962e+06	5.15e-26	0.44	2.62e-22	-2.27e-13	0.662	-1.62e-11

Mode 10

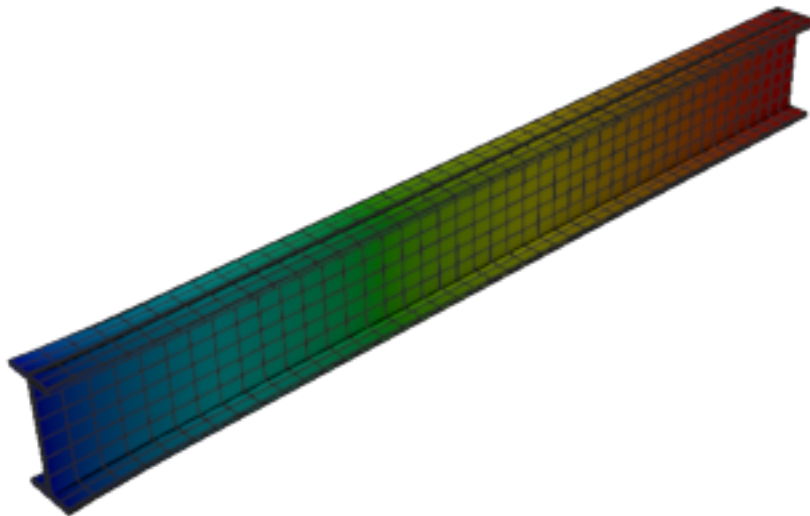


Figure 188: Abaqus — mode 10, 431.802 Hz

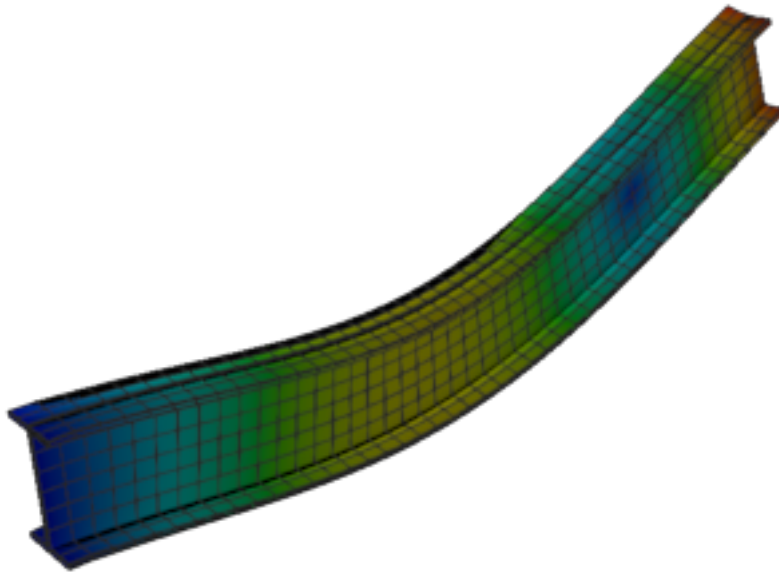


Figure 189: Sesam — mode 10, 253.463 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	431.800	+26.02	7.36085e+06	153.54	1.07e-21	9.26e-21	12.391	3.27e-11	-9.62e-11
Sesam	253.463	-26.02	2.53623e+06	1.48e-19	5.14e-20	40.27	-3.84e-10	2.27e-10	-6.346

Mode 11

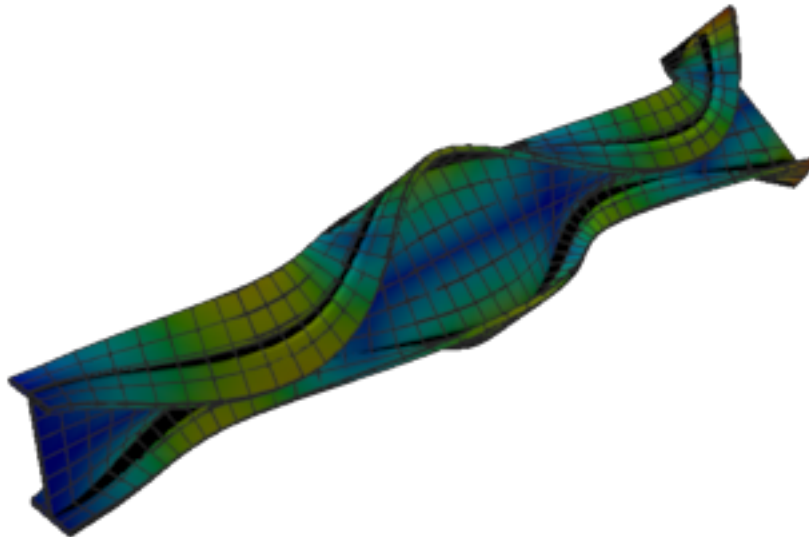


Figure 190: Abaqus — mode 11, 486.965 Hz

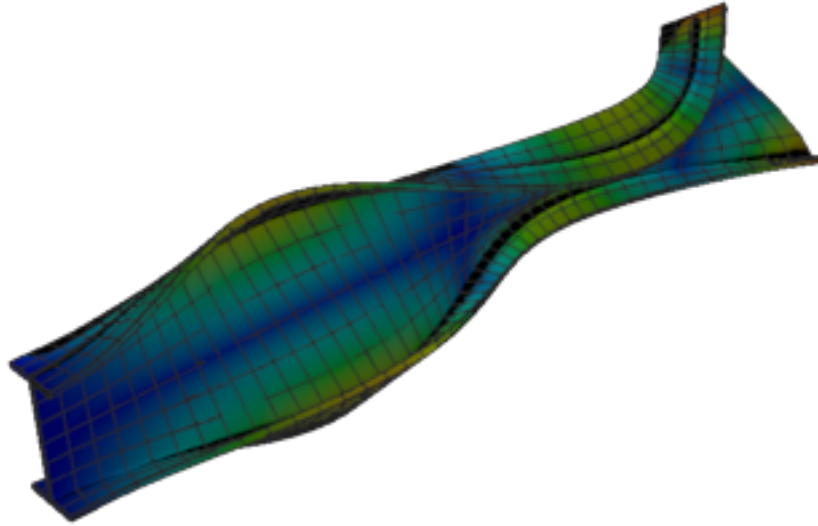


Figure 191: Sesam — mode 11, 256.050 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	486.960	+31.08	9.3617e+06	1.09e-16	2.28e-18	1.17e-18	1.04e-08	1.51e-09	1.08e-09
Sesam	256.050	-31.08	2.58827e+06	4.64e-20	1.35e-20	4.71e-23	2.15e-10	-1.16e-10	-6.86e-12

Solid, 1st order, HEX, reduced integration

Mode 1

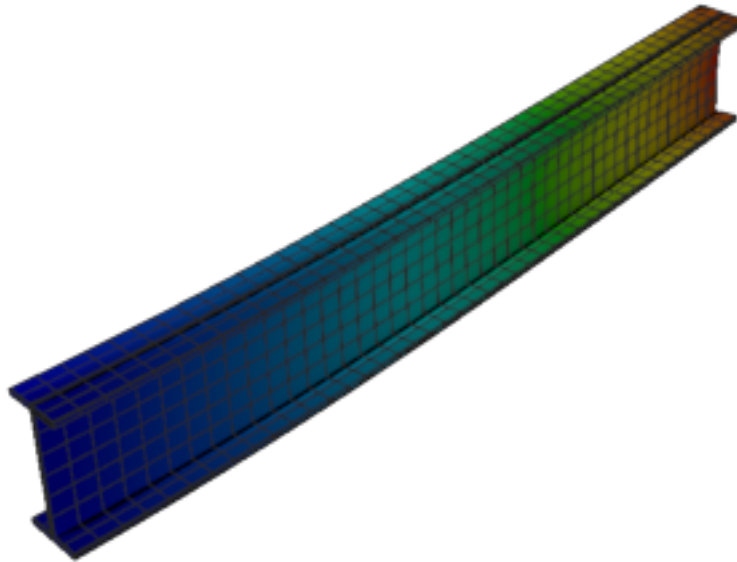


Figure 192: Abaqus — mode 1, 12.514 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.514	6182	1.92e-26	116.92	5.56e-23	1.39e-13	10.813	-7.45e-12

Mode 2

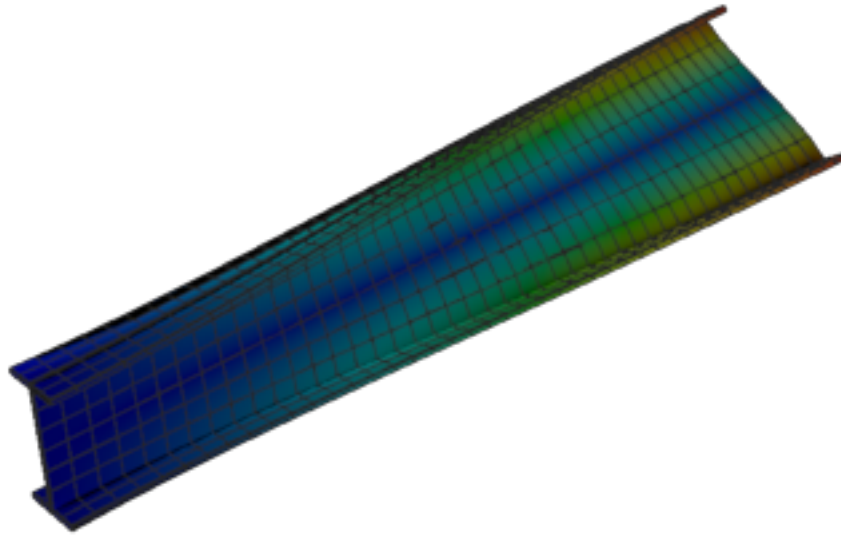


Figure 193: Abaqus — mode 2, 34.157 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	34.157	46060	4.54e-27	1.11e-19	8.80e-22	6.74e-14	3.33e-10	-2.97e-11

Mode 3

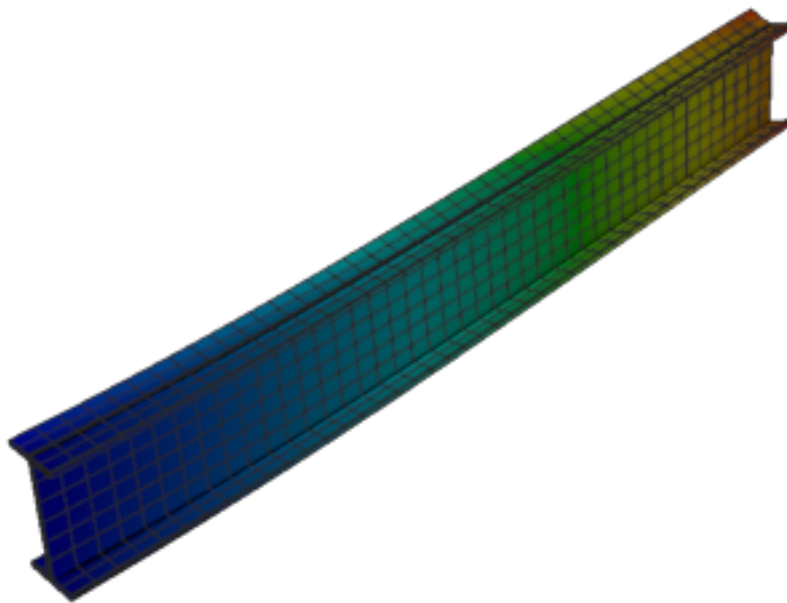


Figure 194: Abaqus — mode 3, 49.598 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	49.598	97114	1.57e-26	1.07e-20	118.97	-1.25e-13	1.03e-10	10.907

Mode 4

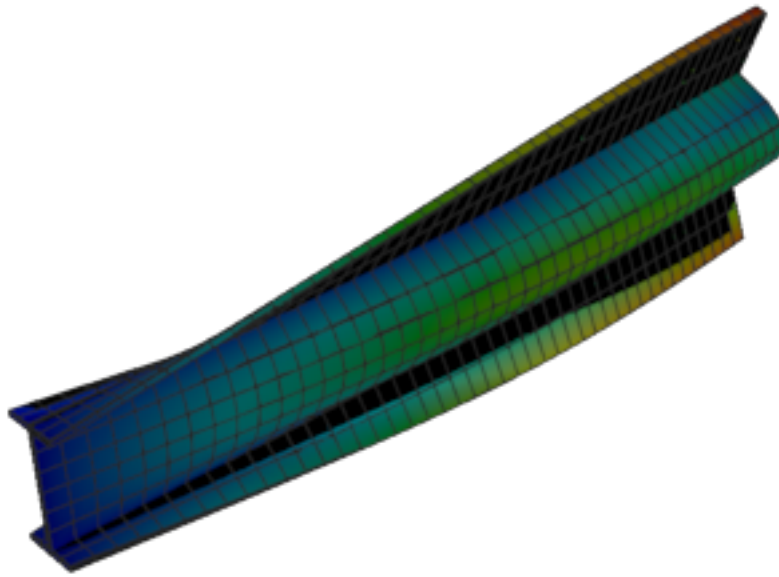


Figure 195: Abaqus — mode 4, 55.271 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	55.271	120602	1.14e-25	2.12	1.05e-18	-3.37e-13	-1.456	1.02e-09

Mode 5

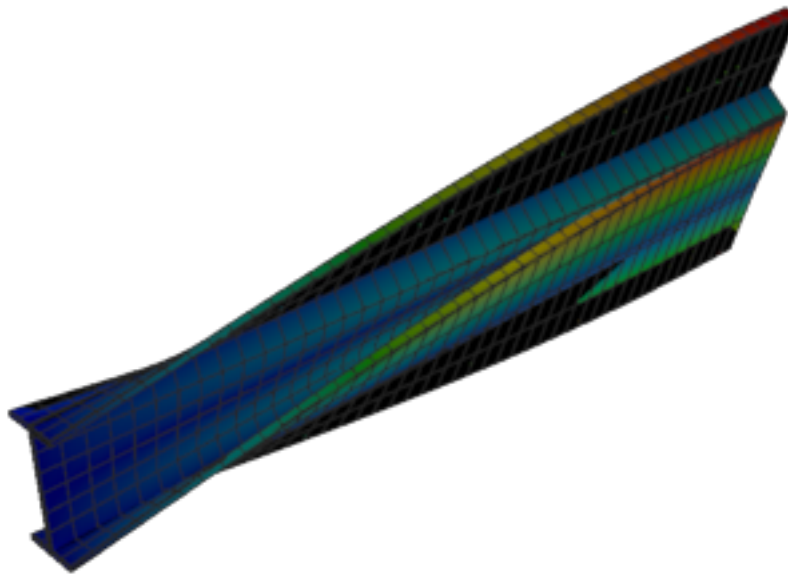


Figure 196: Abaqus — mode 5, 64.305 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	64.305	163249	1.13e-26	8.64e-20	1.24e-20	-1.06e-13	-2.94e-10	1.11e-10

Mode 6

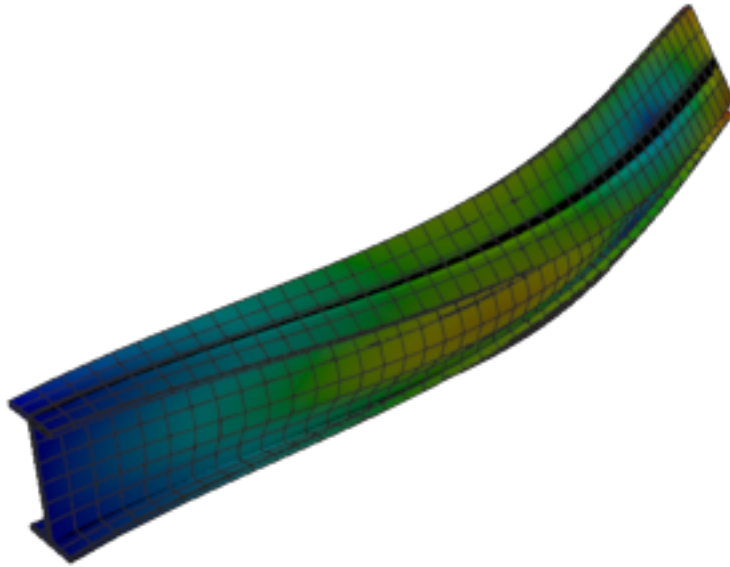


Figure 197: Abaqus — mode 6, 74.866 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	74.866	221271	1.12e-26	31.40	1.02e-20	1.06e-13	-5.603	-1.01e-10

Mode 7

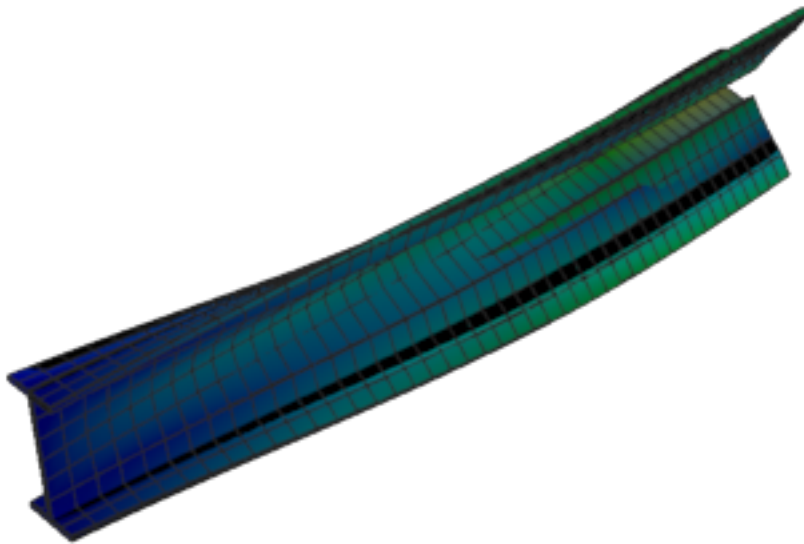


Figure 198: Abaqus — mode 7, 90.033 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	90.033	320010	1.17e-28	2.79	5.27e-21	-1.08e-14	-1.671	7.26e-11

Mode 8

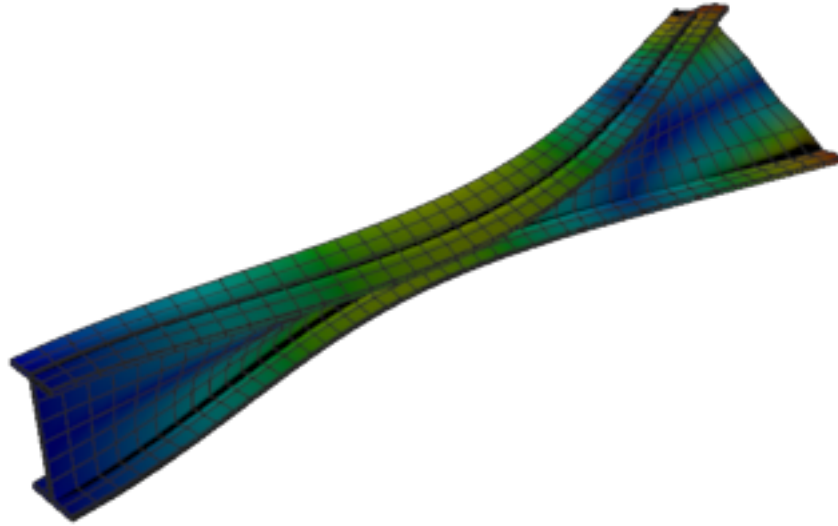


Figure 199: Abaqus — mode 8, 124.578 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	124.580	612693	3.87e-24	3.38e-21	2.90e-24	-1.97e-12	-5.82e-11	-1.70e-12

Mode 9

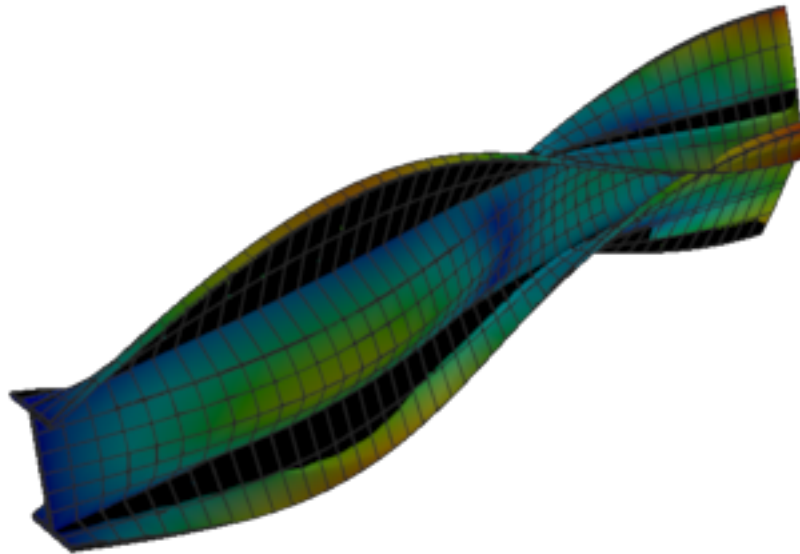


Figure 200: Abaqus — mode 9, 155.992 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	155.990	960645	7.43e-21	1.12	2.07e-20	-8.62e-11	-1.056	-1.44e-10

Mode 10

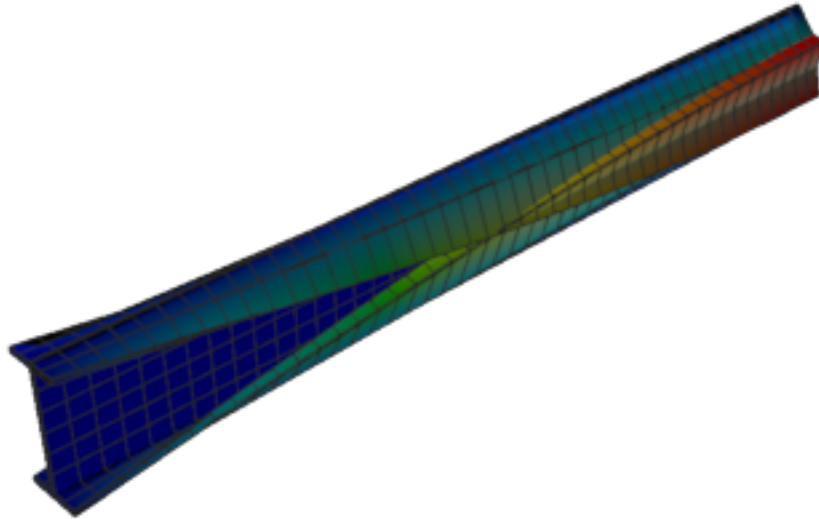


Figure 201: Abaqus — mode 10, 159.952 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	159.950	1.01004e+06	3.65e-04	8.80e-19	3.04e-19	0.019	-9.38e-10	5.51e-10

Mode 11

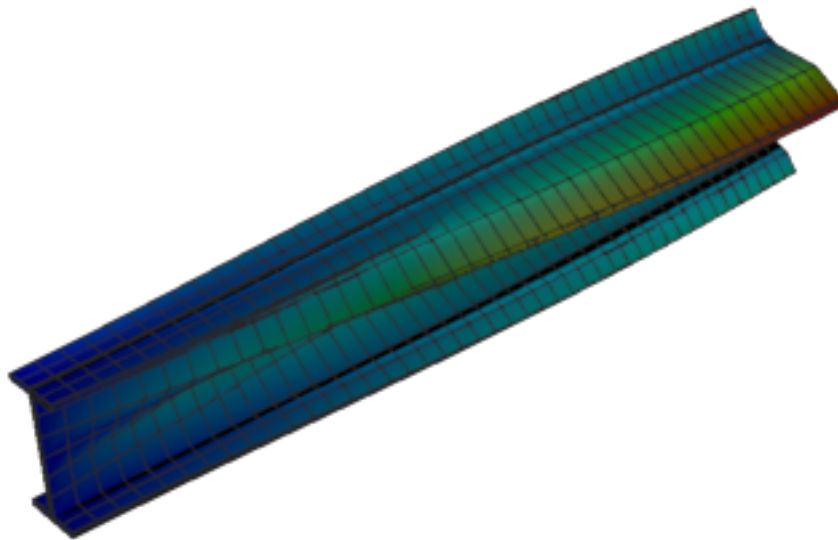


Figure 202: Abaqus — mode 11, 162.557 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	162.560	1.04321e+06	4.88e-19	1.57e-19	3.29e-20	-6.98e-10	3.96e-10	-1.81e-10

Solid, 2nd order, TET

Mode 1

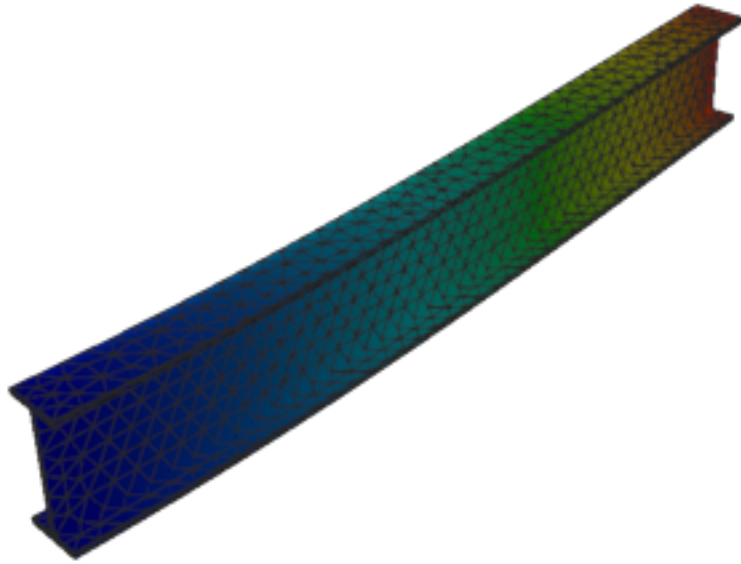


Figure 203: Abaqus — mode 1, 12.954 Hz

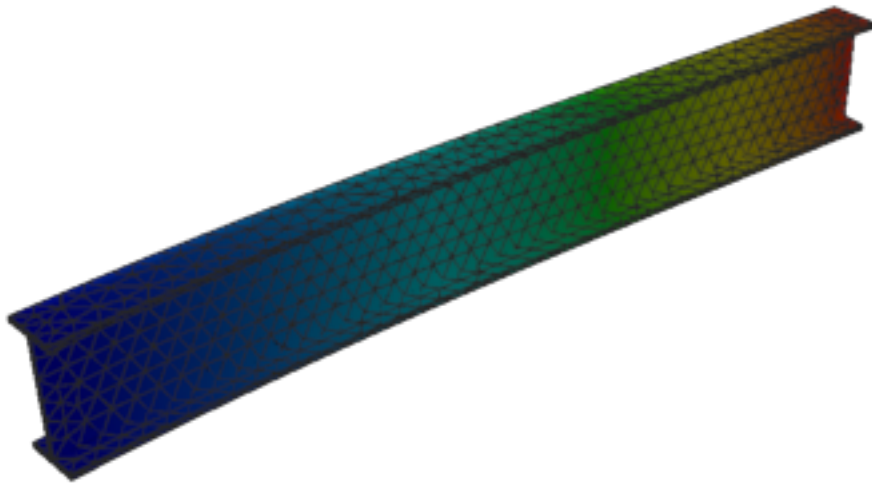


Figure 204: Sesam — mode 1, 12.954 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.954	1.00e-03	6624.5	3.65e-13	116.51	2.81e-11	6.04e-07	10.794	5.30e-06
Sesam	12.954	-1.00e-03	6624.46	3.01e-13	116.51	2.70e-11	-5.49e-07	-10.794	-5.20e-06

Mode 2

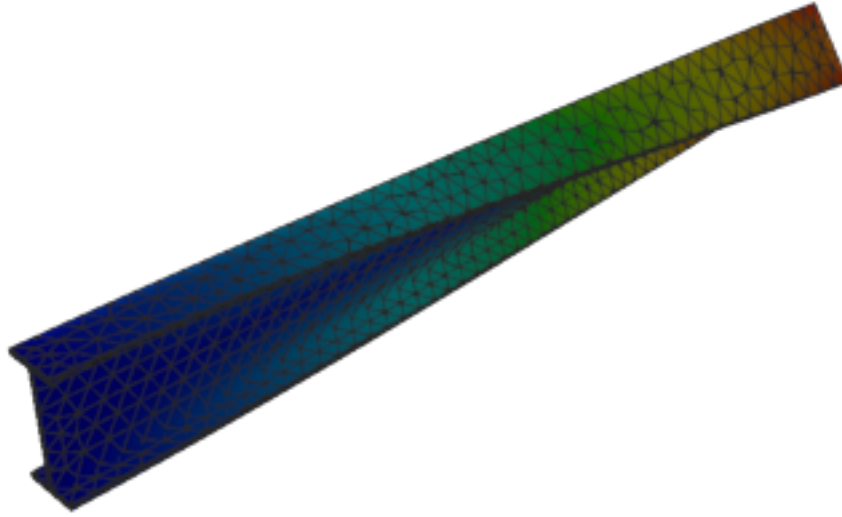


Figure 205: Abaqus — mode 2, 20.294 Hz

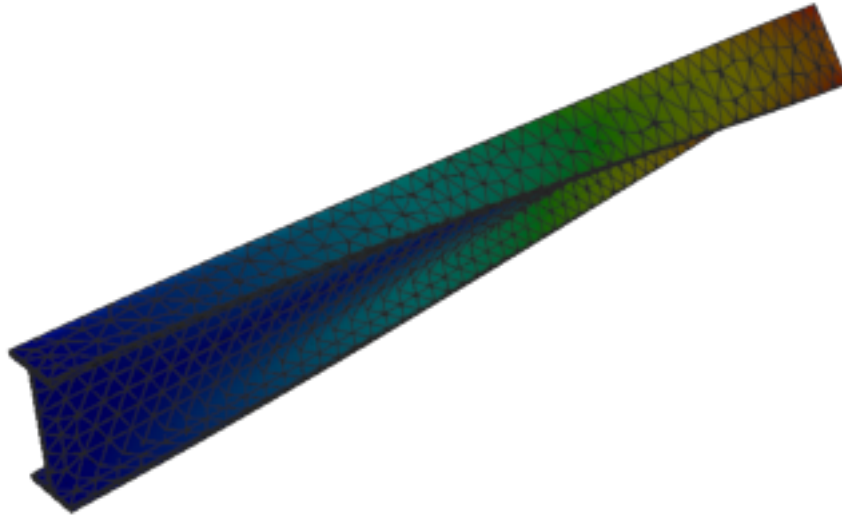


Figure 206: Sesam — mode 2, 20.294 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	20.294	-1.13e-03	16260	8.19e-12	5.86e-08	1.99e-09	2.86e-06	-2.42e-04	4.47e-05
Sesam	20.294	1.13e-03	16259.8	8.59e-12	5.86e-08	1.98e-09	2.93e-06	-2.42e-04	4.45e-05

Mode 3

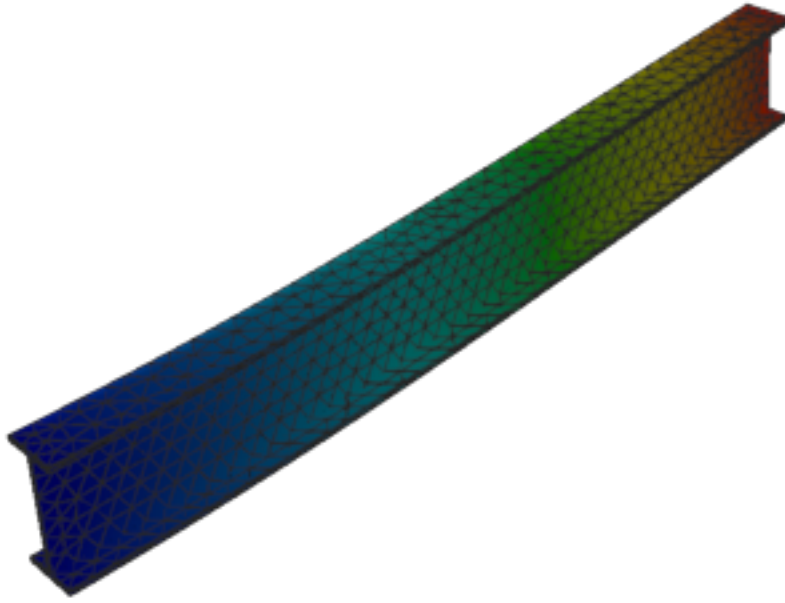


Figure 207: Abaqus — mode 3, 50.540 Hz

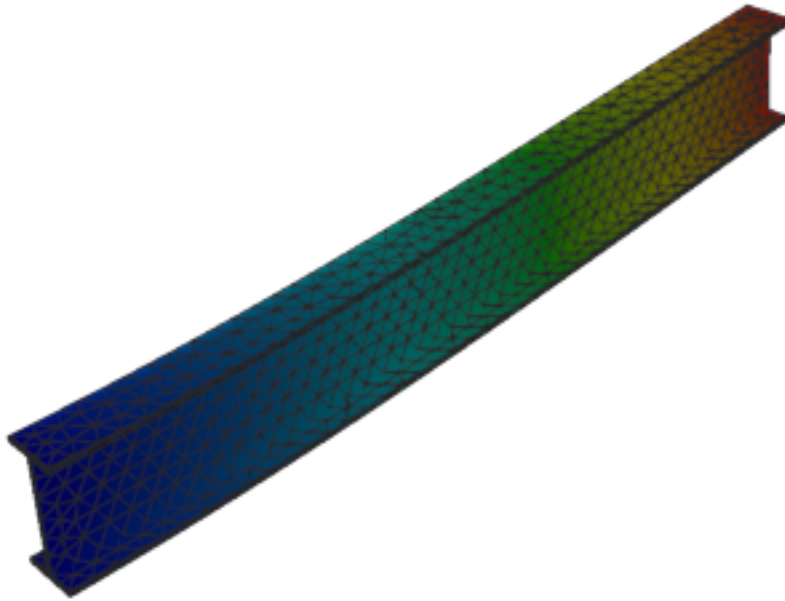


Figure 208: Sesam — mode 3, 50.540 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.540	-4.95e-05	100840	3.09e-10	1.03e-08	118.35	1.76e-05	-1.01e-04	10.879
Sesam	50.540	4.95e-05	100840	3.10e-10	1.03e-08	118.35	1.76e-05	-1.01e-04	10.879

Mode 4

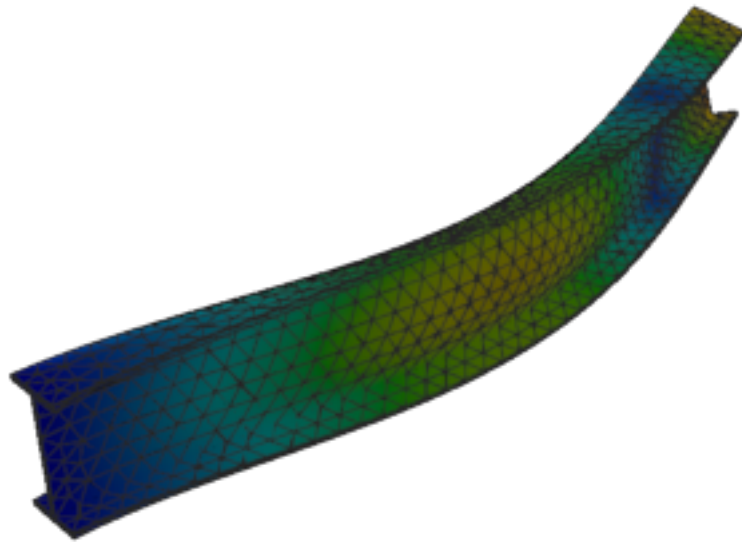


Figure 209: Abaqus — mode 4, 77.128 Hz

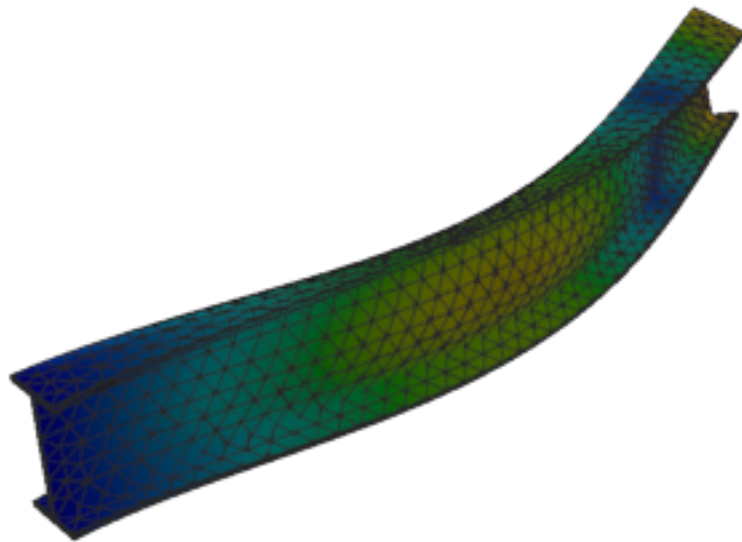


Figure 210: Sesam — mode 4, 77.128 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	77.128	1.43e-04	234845	6.40e-12	35.97	1.94e-09	2.53e-06	-5.997	-4.41e-05
Sesam	77.128	-1.43e-04	234845	1.04e-11	35.97	1.89e-09	3.22e-06	-5.997	-4.35e-05

Mode 5

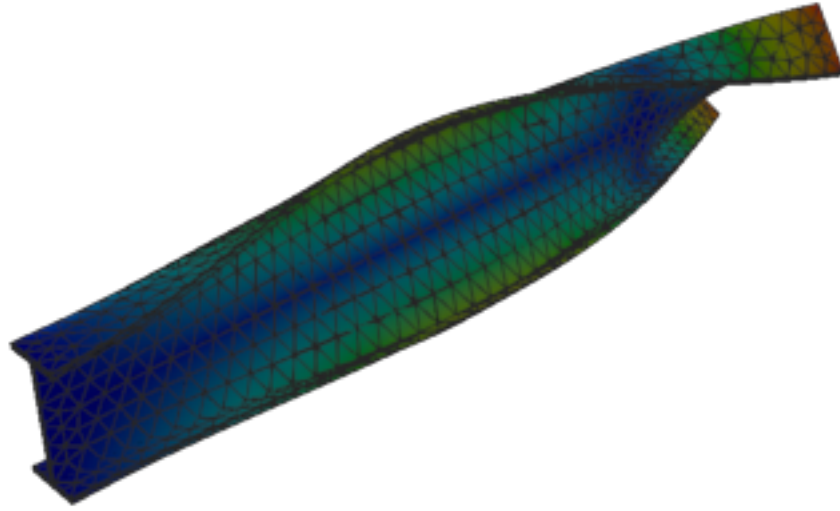


Figure 211: Abaqus — mode 5, 97.830 Hz

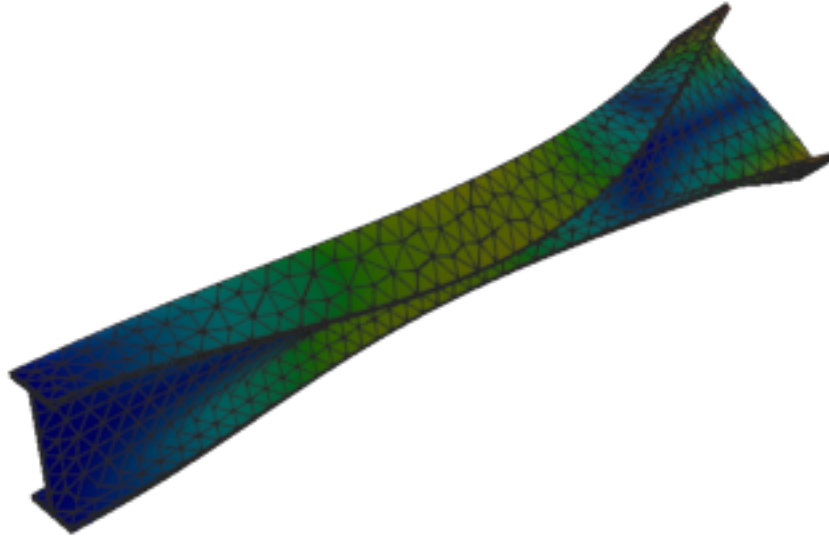


Figure 212: Sesam — mode 5, 97.830 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	97.830	2.10e-04	377834	1.93e-10	3.14e-07	6.49e-09	-1.39e-05	-0.001	8.06e-05
Sesam	97.830	-2.10e-04	377833	1.99e-10	3.14e-07	6.59e-09	1.41e-05	0.001	-8.12e-05

Mode 6

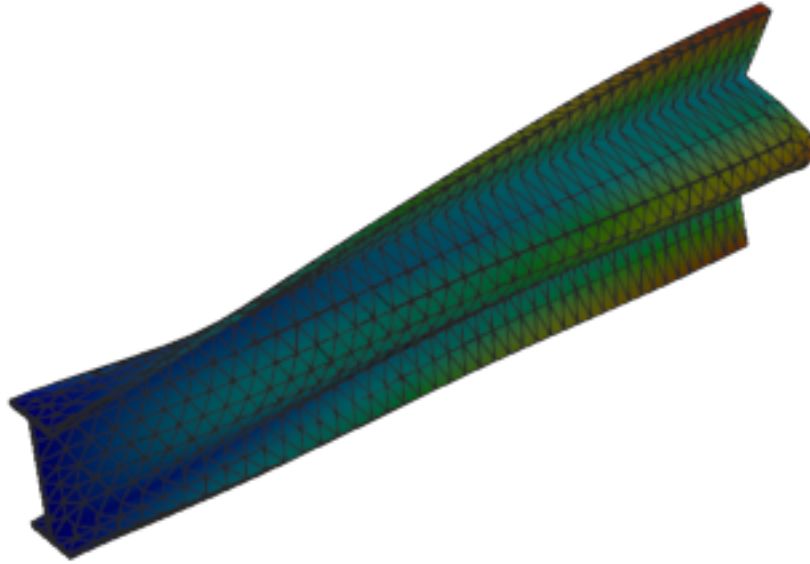


Figure 213: Abaqus — mode 6, 132.482 Hz

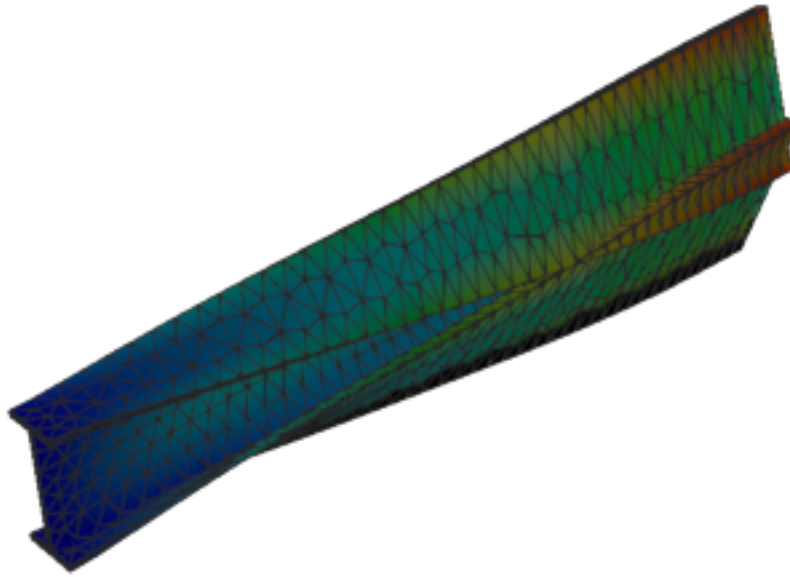


Figure 214: Sesam — mode 6, 132.478 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	132.480	6.04e-04	692901	1.05e-09	0.01	2.04e-09	3.23e-05	0.119	-4.51e-05
Sesam	132.478	-6.04e-04	692867	1.14e-09	0.01	2.04e-09	-3.38e-05	-0.119	4.52e-05

Mode 7

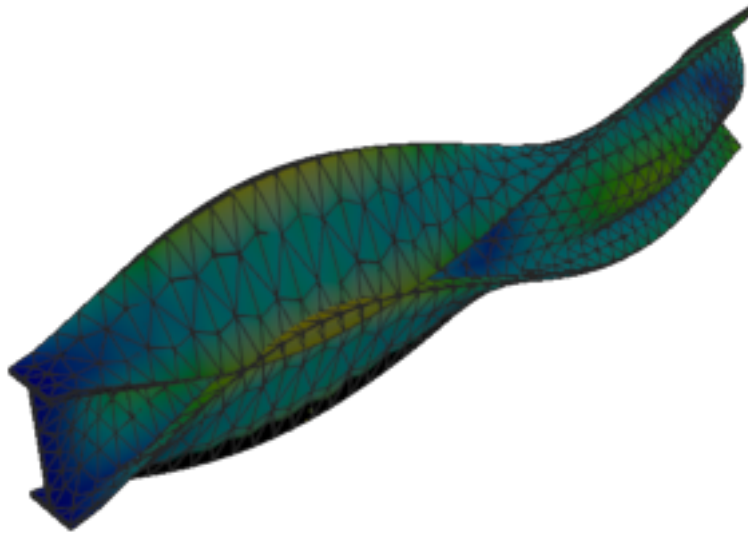


Figure 215: Abaqus — mode 7, 153.634 Hz

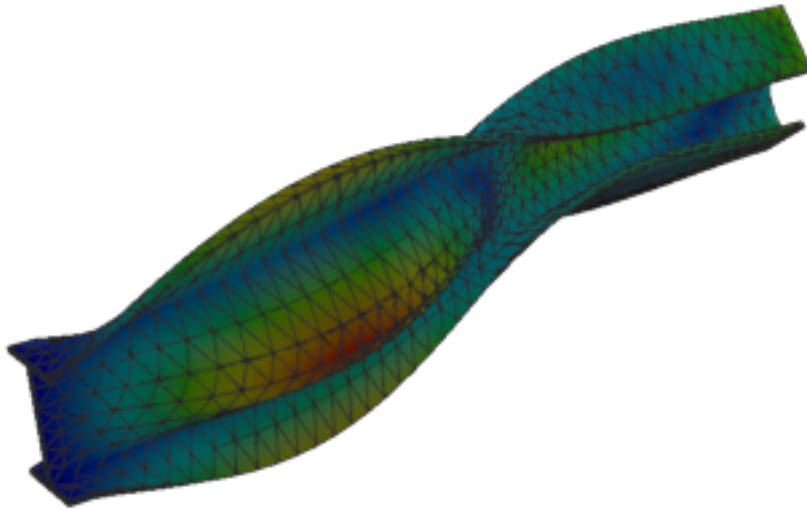


Figure 216: Sesam — mode 7, 153.631 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	153.630	-4.56e-04	931828	1.43e-08	3.12	2.11e-09	-1.19e-04	1.768	-4.59e-05
Sesam	153.631	4.56e-04	931794	1.56e-08	3.12	2.15e-09	1.25e-04	-1.768	4.63e-05

Mode 8

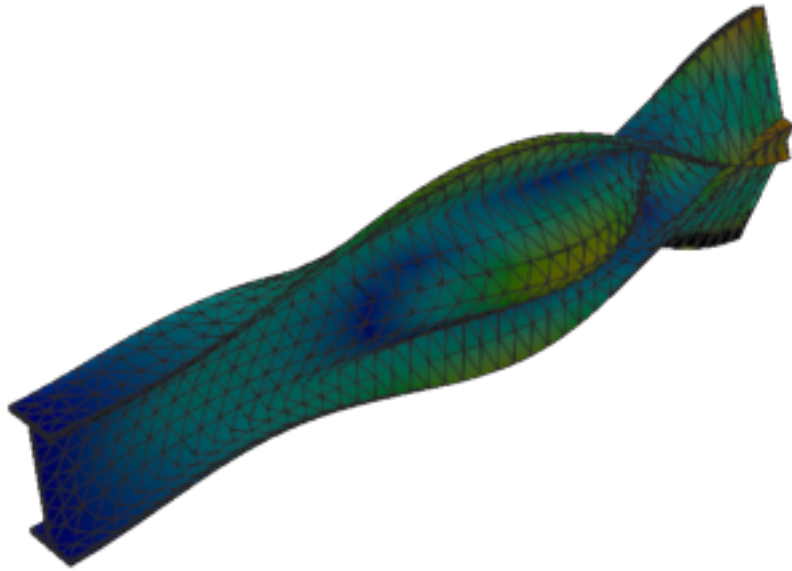


Figure 217: Abaqus — mode 8, 178.118 Hz

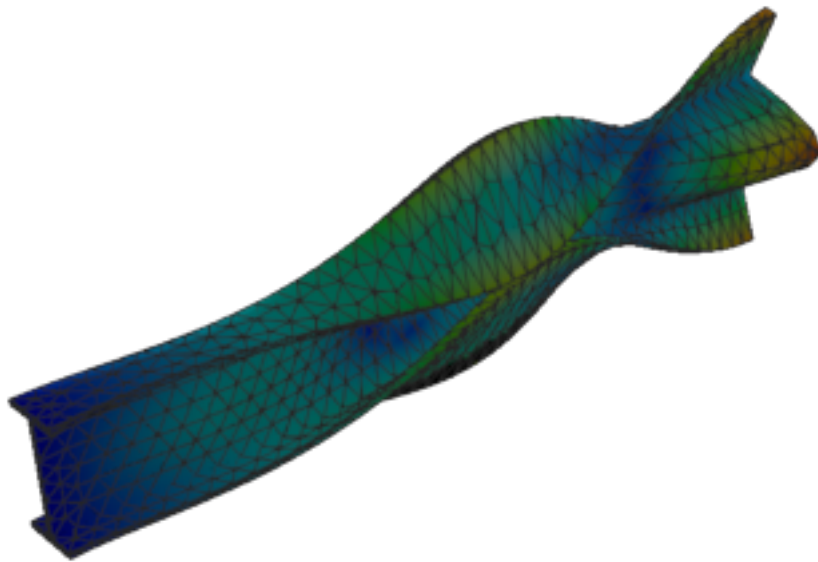


Figure 218: Sesam — mode 8, 178.114 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	178.120	1.74e-03	1.2525e+06	2.65e-10	5.79	5.99e-10	-1.63e-05	2.405	-2.45e-05
Sesam	178.114	-1.74e-03	1.25243e+06	3.03e-10	5.79	6.40e-10	1.74e-05	-2.406	2.53e-05

Mode 9

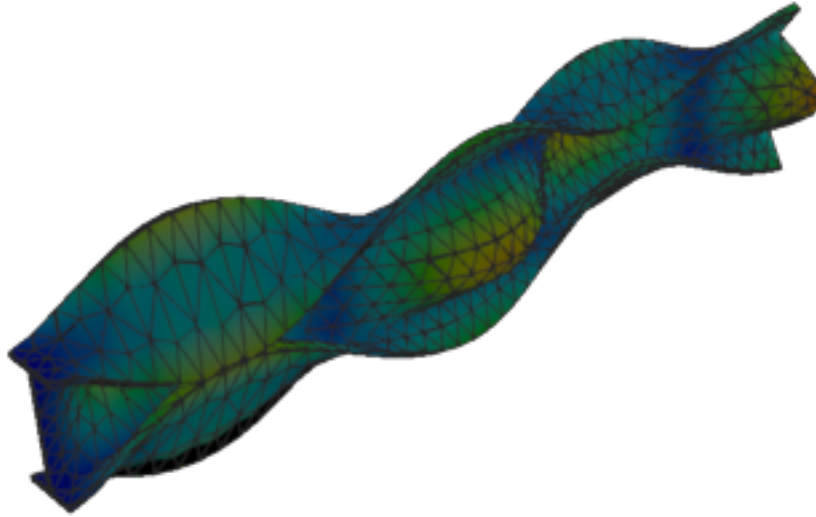


Figure 219: Abaqus — mode 9, 215.822 Hz

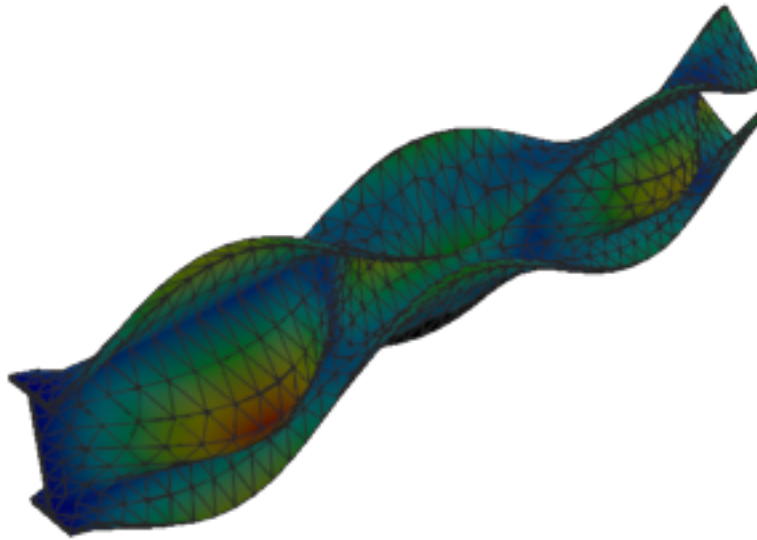


Figure 220: Sesam — mode 9, 215.815 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	215.820	1.20e-03	1.83887e+06	8.48e-08	0.60	8.50e-08	-2.91e-04	0.774	2.91e-04
Sesam	215.815	-1.20e-03	1.83875e+06	9.03e-08	0.60	8.47e-08	3.00e-04	-0.774	-2.91e-04

Mode 10

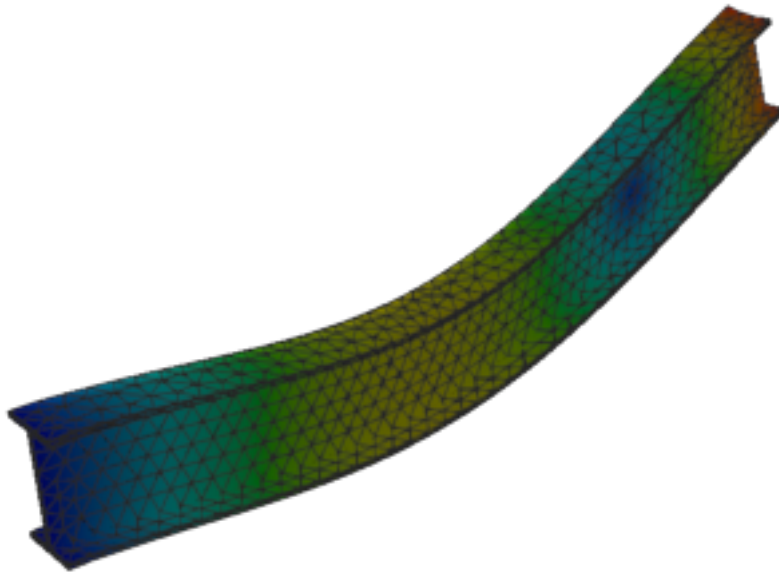


Figure 221: Abaqus — mode 10, 253.203 Hz

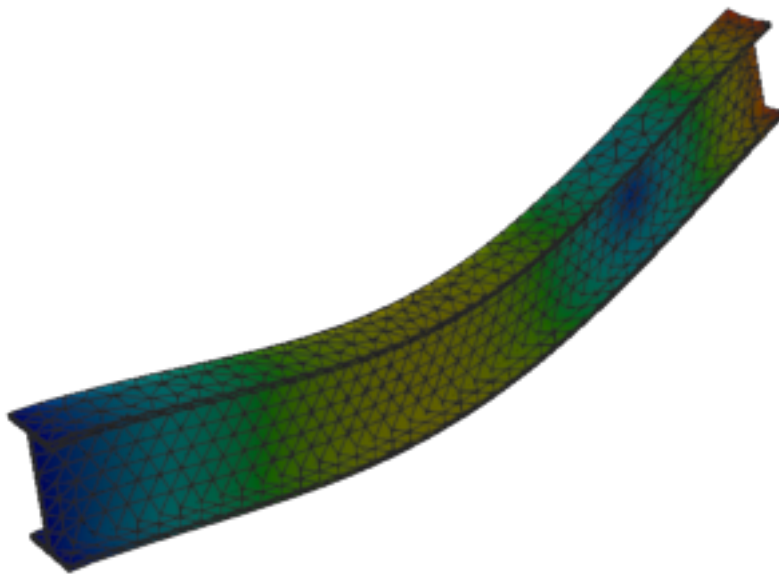


Figure 222: Sesam — mode 10, 253.203 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	253.200	-5.73e-04	2.53103e+06	8.86e-09	1.97e-08	40.25	-9.41e-05	1.40e-04	-6.344
Sesam	253.203	5.73e-04	2.53103e+06	9.13e-09	1.99e-08	40.25	-9.56e-05	1.41e-04	-6.344

Mode 11

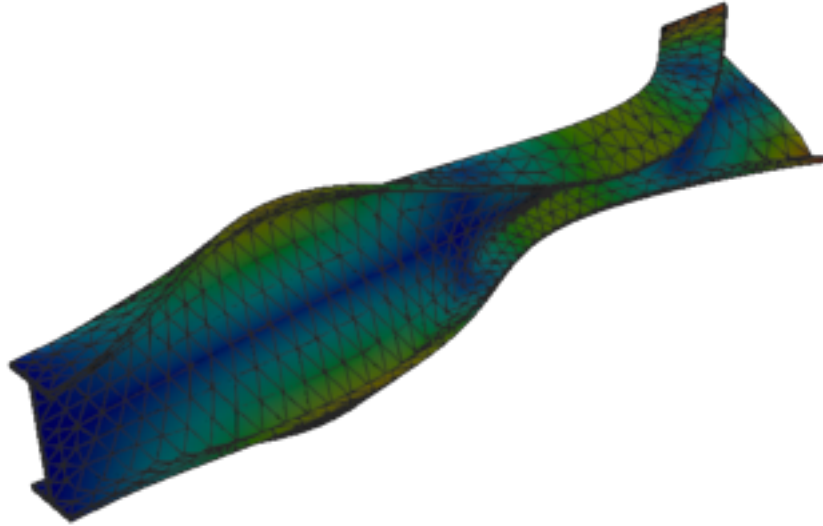


Figure 223: Abaqus — mode 11, 254.466 Hz

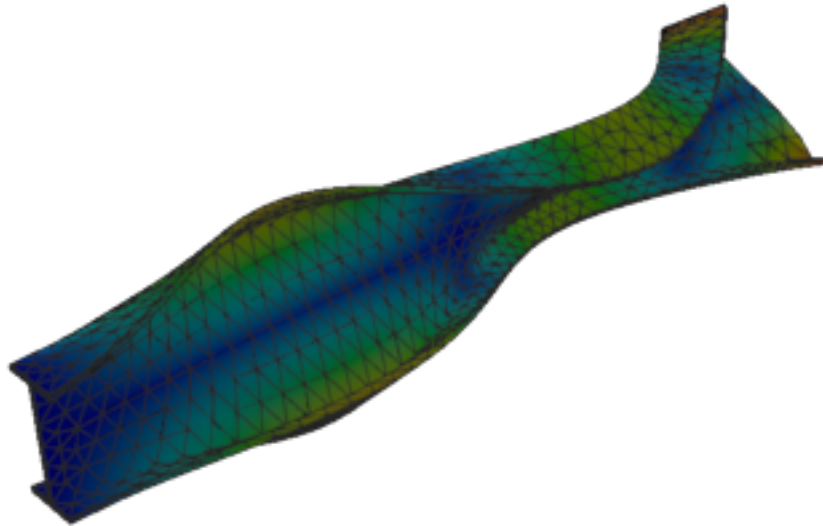


Figure 224: Sesam — mode 11, 254.466 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	254.470	8.65e-04	2.55635e+06	1.63e-09	6.96e-07	4.16e-05	-4.04e-05	-0.001	-0.006
Sesam	254.466	-8.65e-04	2.55634e+06	1.66e-09	6.95e-07	4.17e-05	-4.07e-05	-0.001	-0.006

Solid, 2nd order, HEX

Mode 1

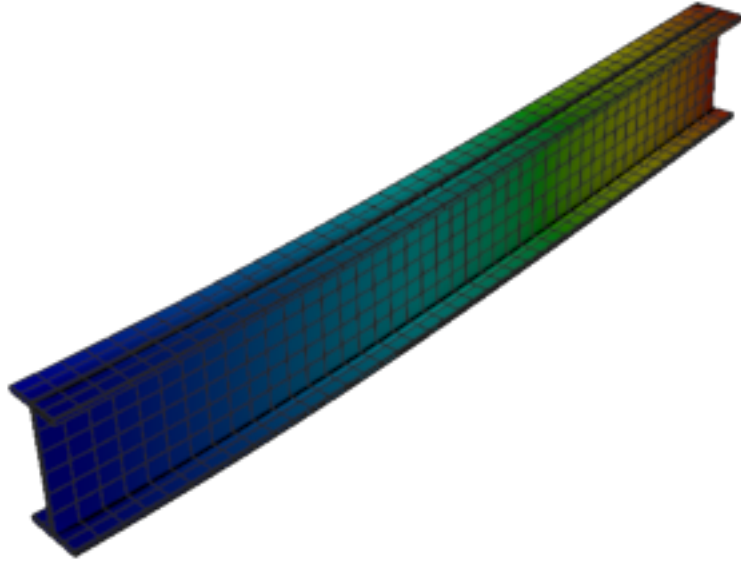


Figure 225: Abaqus — mode 1, 12.955 Hz

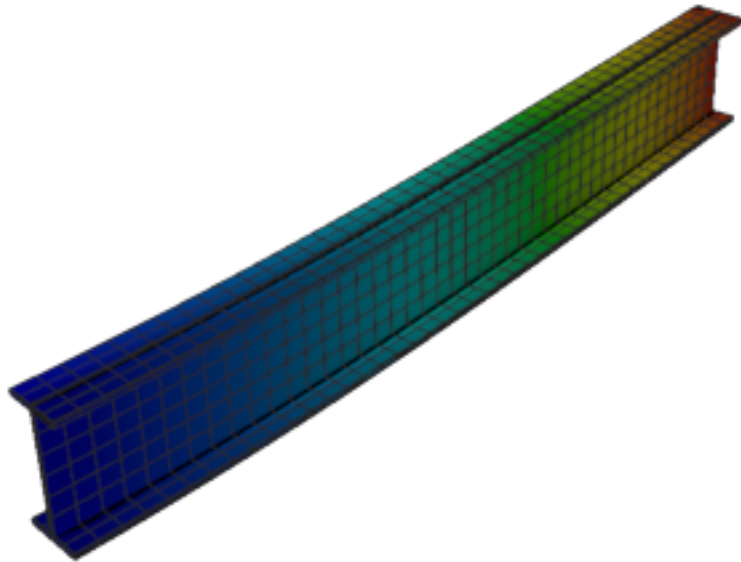


Figure 226: Sesam — mode 1, 12.954 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.955	3.32e-03	6625.8	3.08e-24	116.50	5.64e-20	1.76e-12	10.794	2.37e-10
Sesam	12.954	-3.32e-03	6624.86	3.50e-24	116.51	1.44e-22	1.87e-12	10.794	1.20e-11

Mode 2

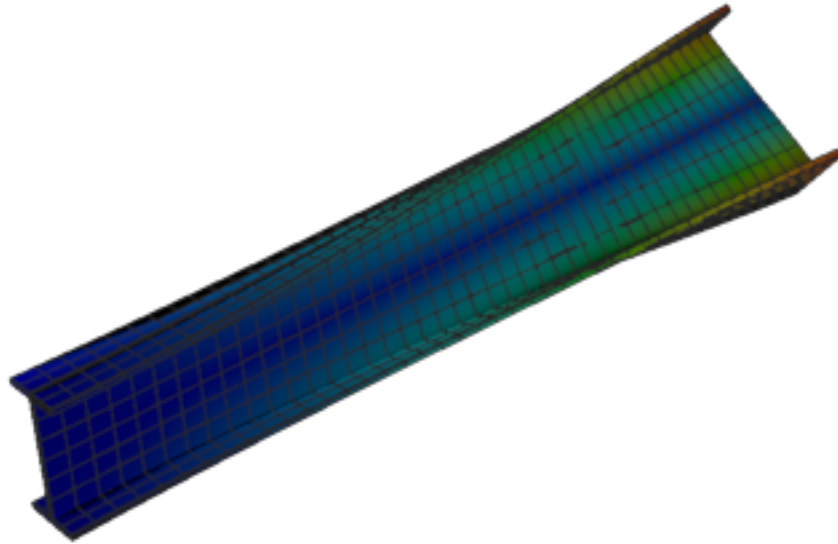


Figure 227: Abaqus — mode 2, 20.150 Hz

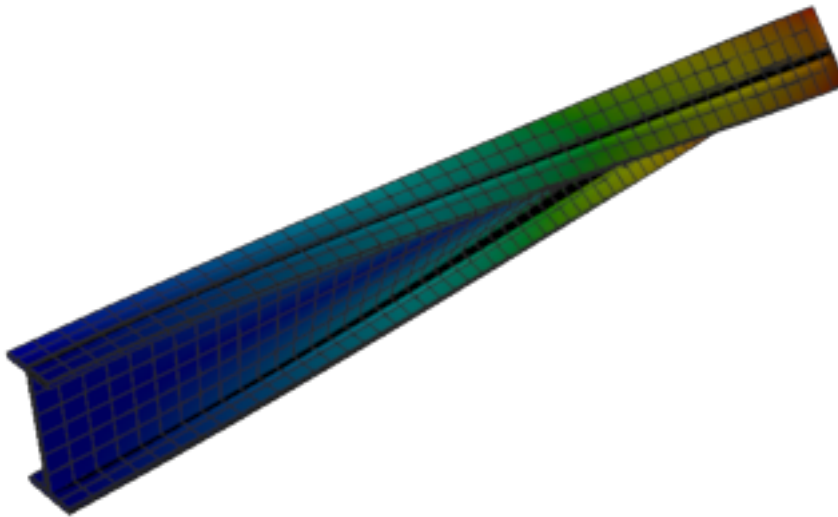


Figure 228: Sesam — mode 2, 20.044 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	20.150	+0.26	16030	2.26e-25	4.71e-16	2.32e-18	-4.76e-13	2.17e-08	1.52e-09
Sesam	20.044	-0.26	15861.7	2.99e-24	4.86e-15	1.02e-18	1.73e-12	-6.97e-08	1.01e-09

Mode 3

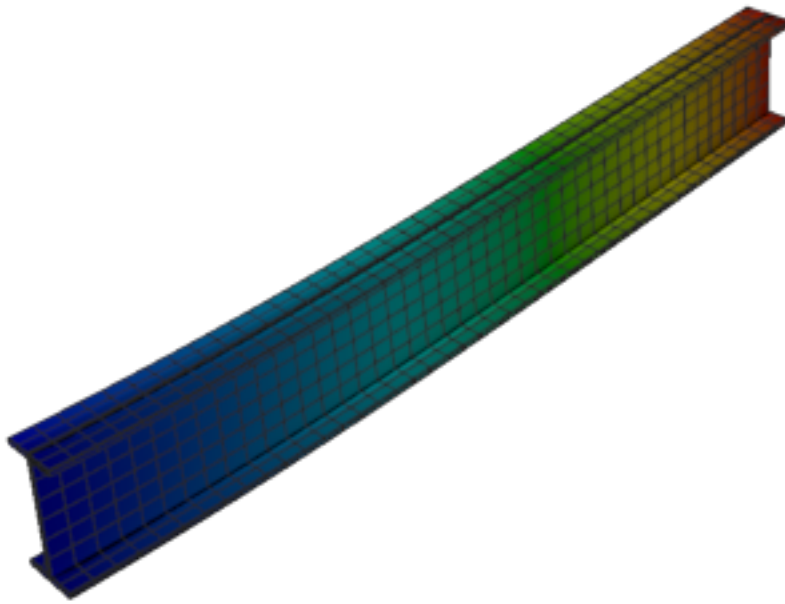


Figure 229: Abaqus — mode 3, 50.541 Hz

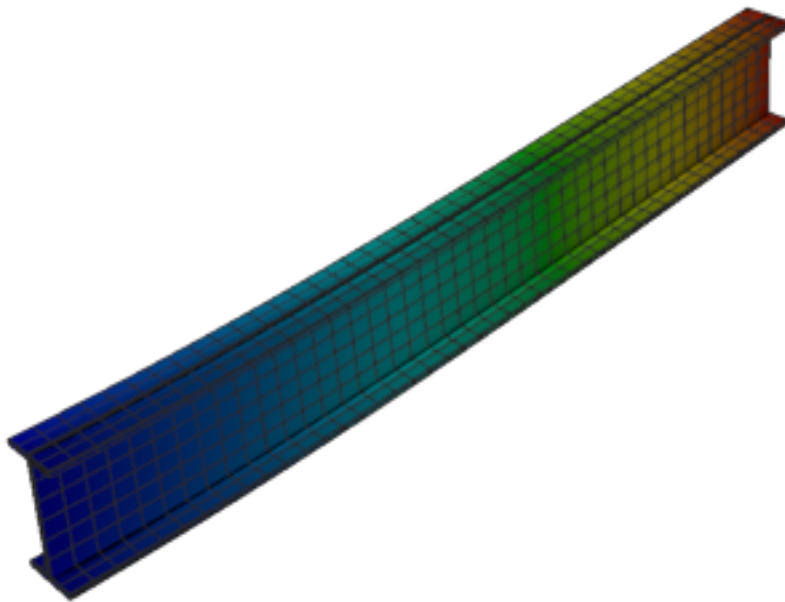


Figure 230: Sesam — mode 3, 50.534 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.541	+0.01	100844	1.71e-23	8.62e-20	118.36	-4.13e-12	-2.94e-10	10.879
Sesam	50.534	-0.01	100816	4.30e-24	5.72e-22	118.37	2.07e-12	2.39e-11	10.880

Mode 4

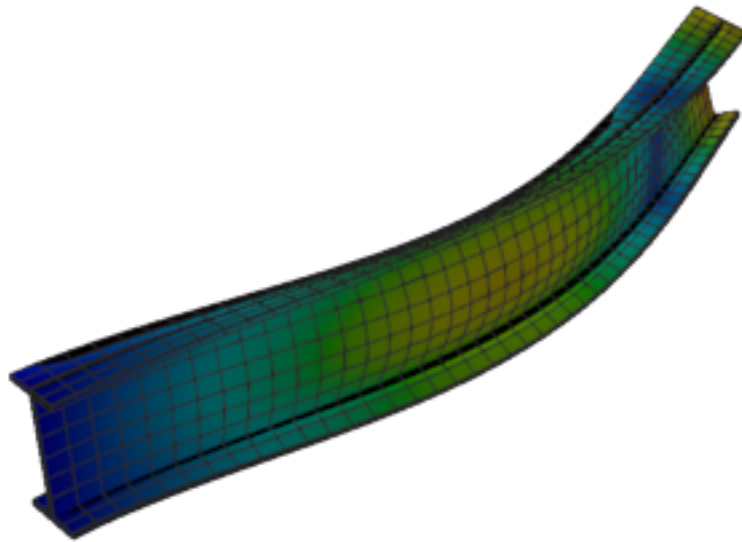


Figure 231: Abaqus — mode 4, 76.890 Hz

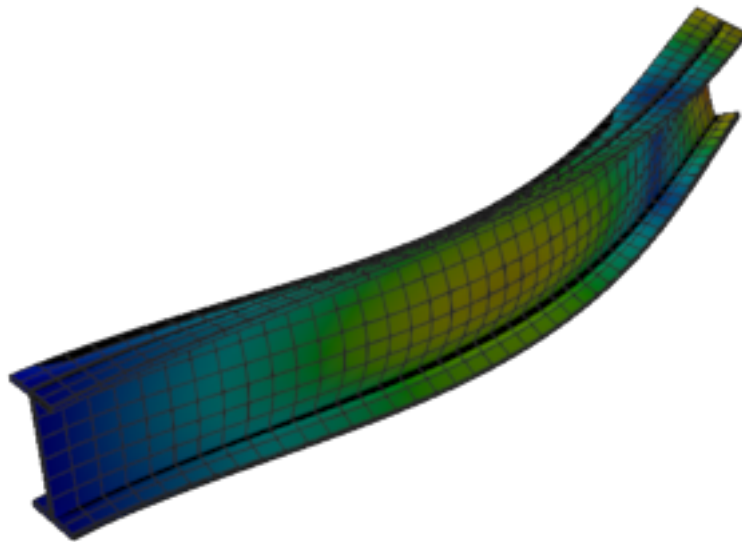


Figure 232: Sesam — mode 4, 76.747 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	76.890	+0.09	233401	9.37e-28	35.91	1.14e-20	-3.06e-14	-5.993	-1.07e-10
Sesam	76.747	-0.09	232530	1.68e-24	35.89	3.76e-21	-1.29e-12	-5.991	6.13e-11

Mode 5

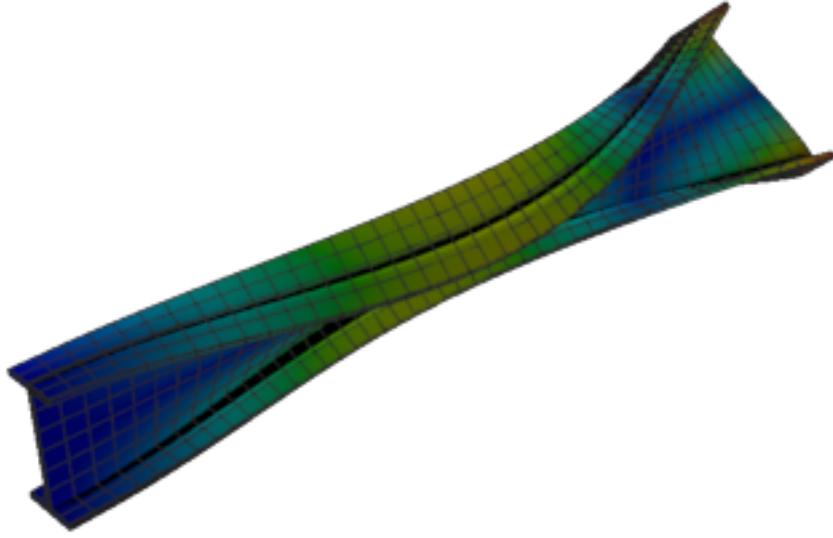


Figure 233: Abaqus — mode 5, 97.594 Hz

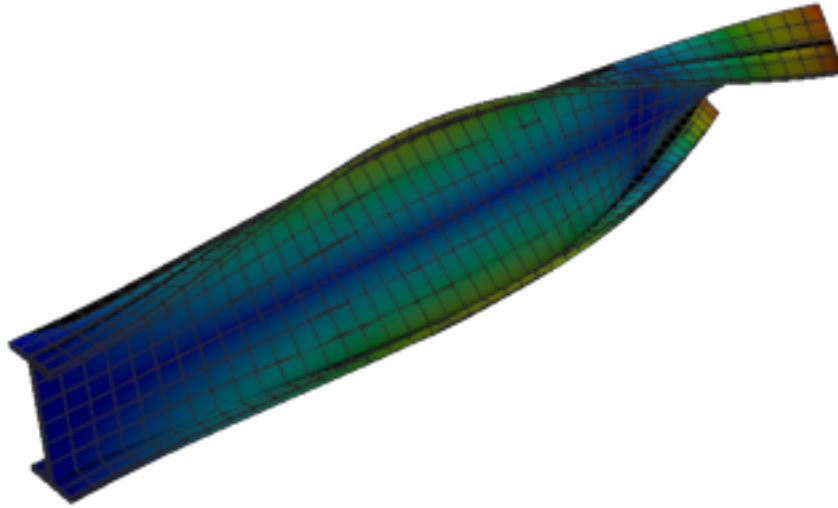


Figure 234: Sesam — mode 5, 97.472 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	97.594	+0.06	376015	1.21e-24	3.12e-19	1.62e-21	1.10e-12	-5.59e-10	-4.02e-11
Sesam	97.472	-0.06	375078	8.04e-25	3.55e-18	2.80e-21	-8.97e-13	1.88e-09	-5.29e-11

Mode 6

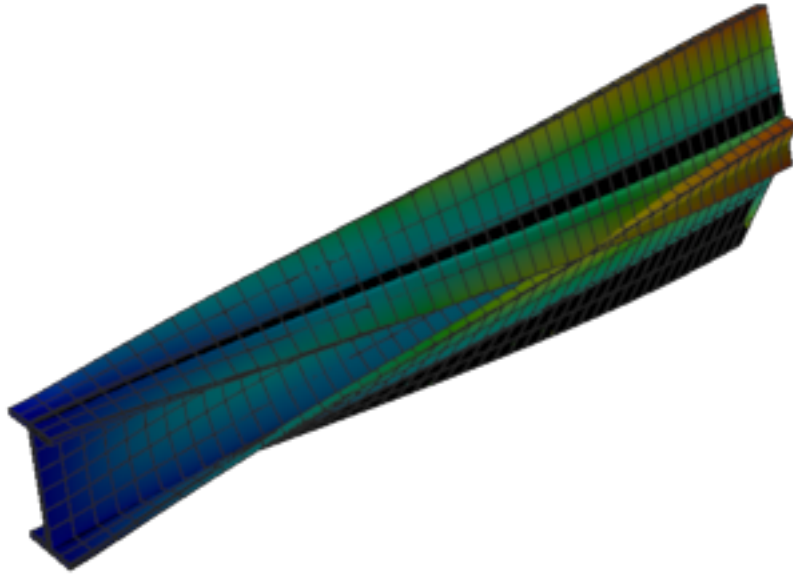


Figure 235: Abaqus — mode 6, 131.365 Hz

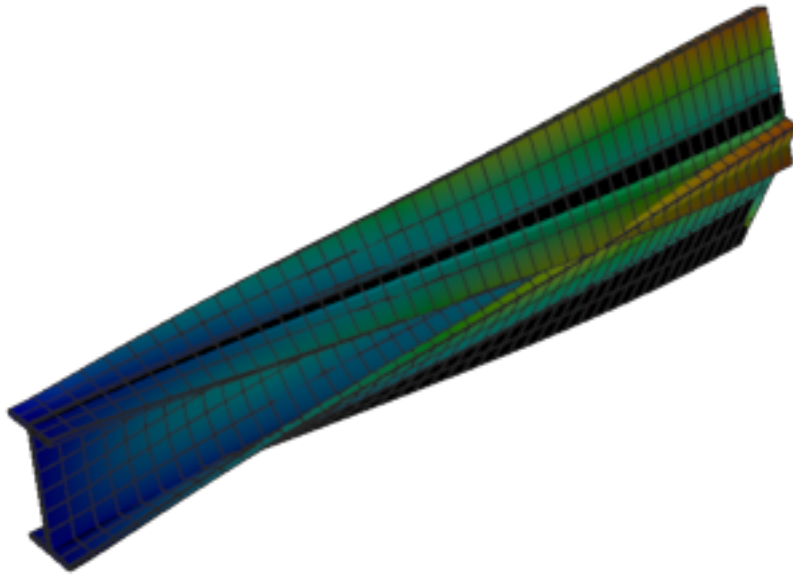


Figure 236: Sesam — mode 6, 130.865 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	131.370	+0.19	681273	2.05e-24	0.01	1.33e-19	1.43e-12	-0.103	-3.65e-10
Sesam	130.865	-0.19	676090	1.00e-25	0.01	9.22e-22	3.16e-13	-0.096	3.04e-11

Mode 7

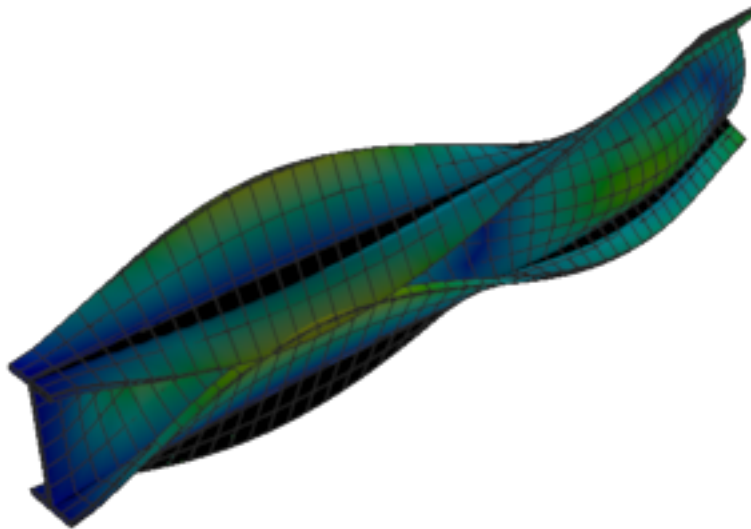


Figure 237: Abaqus — mode 7, 149.958 Hz

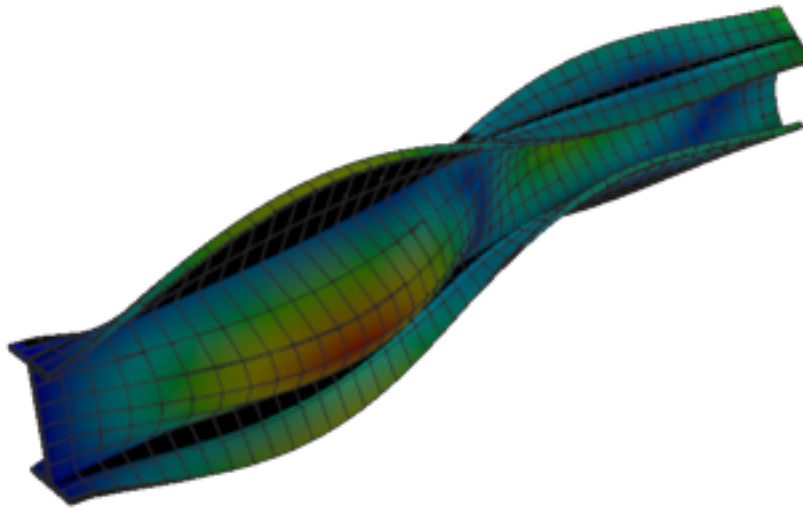


Figure 238: Sesam — mode 7, 148.496 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	149.960	+0.49	887766	2.76e-24	3.31	8.83e-21	1.66e-12	1.818	9.40e-11
Sesam	148.496	-0.49	870539	3.33e-25	3.38	1.39e-22	5.77e-13	-1.839	-1.18e-11

Mode 8

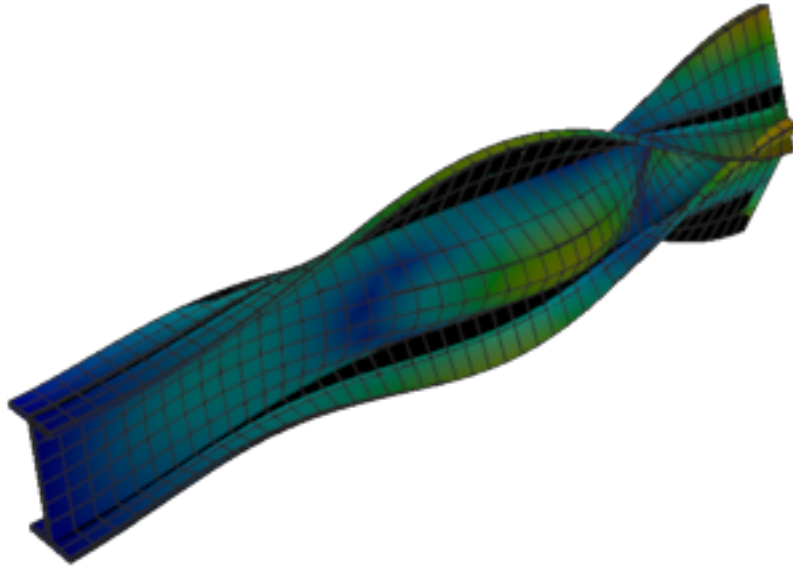


Figure 239: Abaqus — mode 8, 173.925 Hz

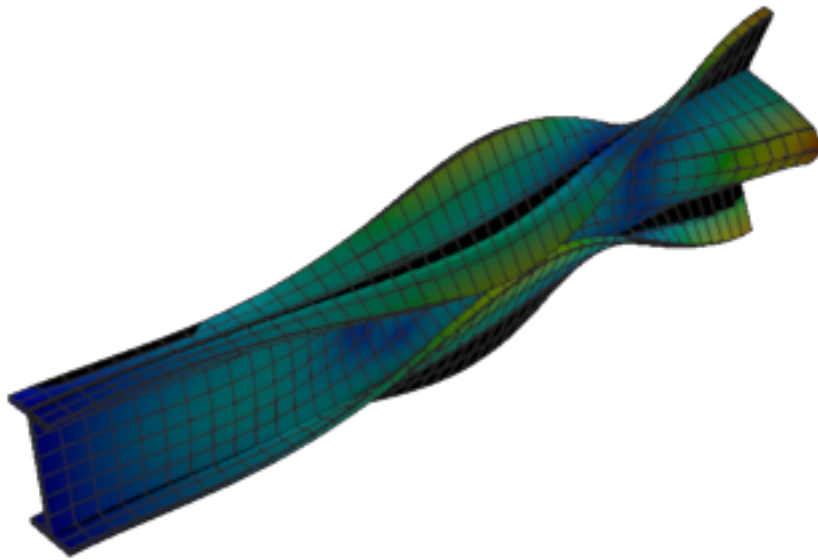


Figure 240: Sesam — mode 8, 172.243 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	173.920	+0.48	1.19422e+06	4.36e-26	5.42	1.76e-20	2.09e-13	2.328	-1.33e-10
Sesam	172.243	-0.48	1.17124e+06	8.12e-26	5.31	3.08e-22	2.85e-13	-2.305	-1.76e-11

Mode 9

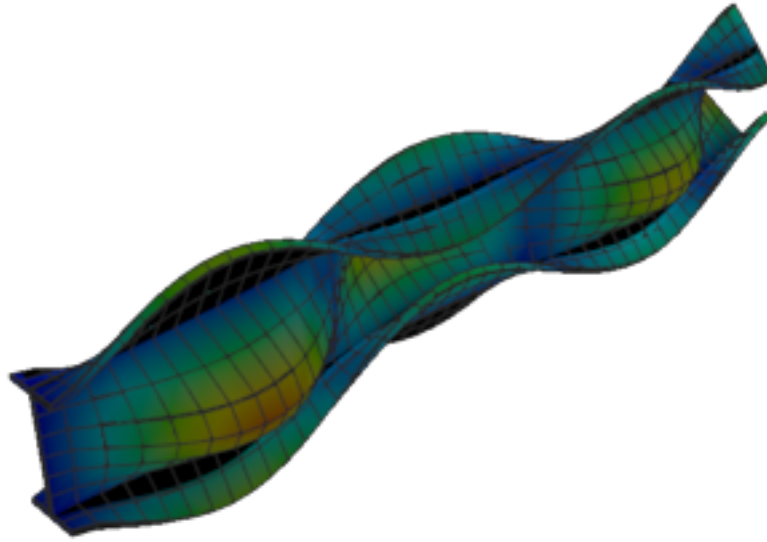


Figure 241: Abaqus — mode 9, 205.292 Hz

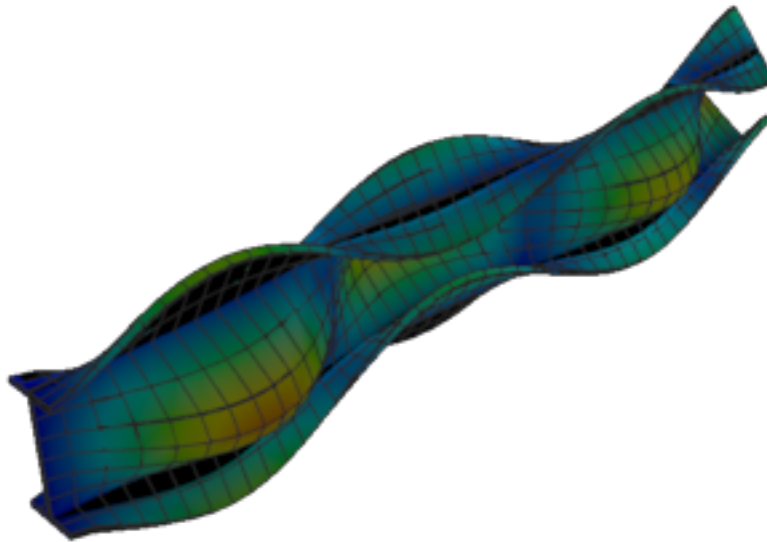


Figure 242: Sesam — mode 9, 201.904 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	205.290	+0.83	1.66381e+06	4.78e-27	0.52	2.91e-22	6.91e-14	-0.719	1.71e-11
Sesam	201.904	-0.83	1.60935e+06	1.55e-24	0.56	1.71e-22	-1.25e-12	-0.746	1.31e-11

Mode 10

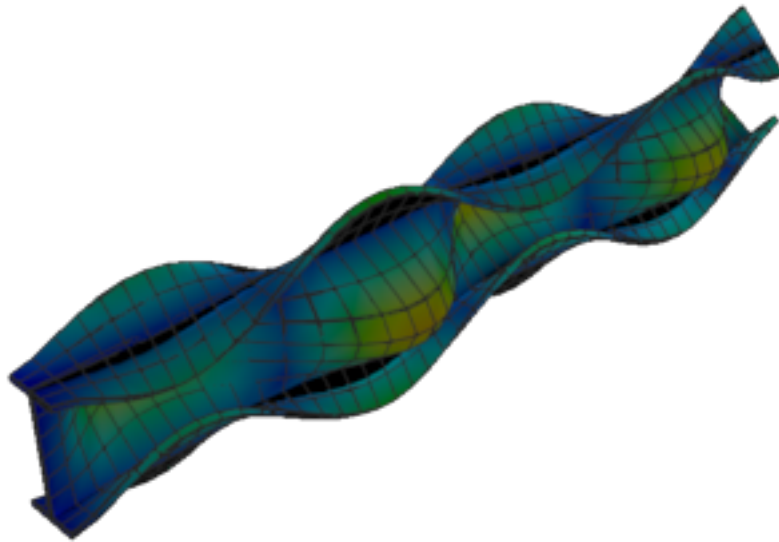


Figure 243: Abaqus — mode 10, 251.347 Hz

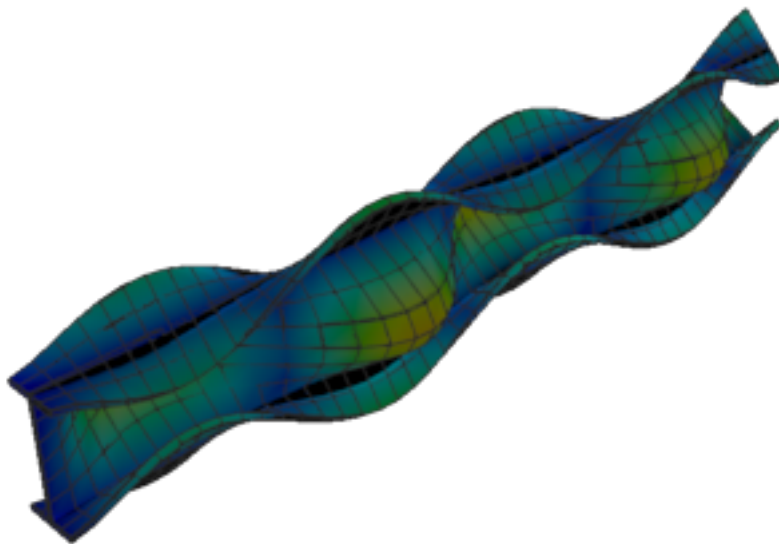


Figure 244: Sesam — mode 10, 246.353 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	251.350	+1.00	2.49407e+06	1.08e-21	1.60	3.13e-19	3.29e-11	1.267	-5.59e-10
Sesam	246.353	-1.00	2.39594e+06	1.32e-18	1.47	6.50e-19	-1.15e-09	1.211	8.06e-10

Mode 11

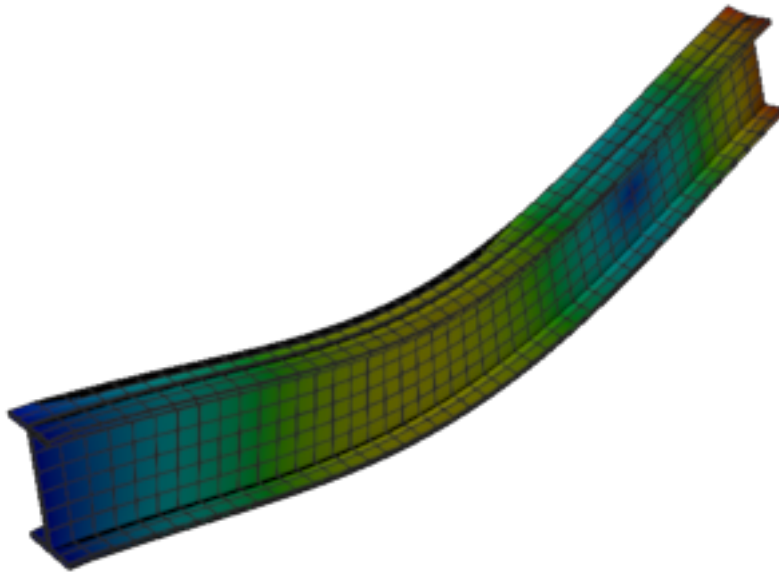


Figure 245: Abaqus — mode 11, 252.917 Hz

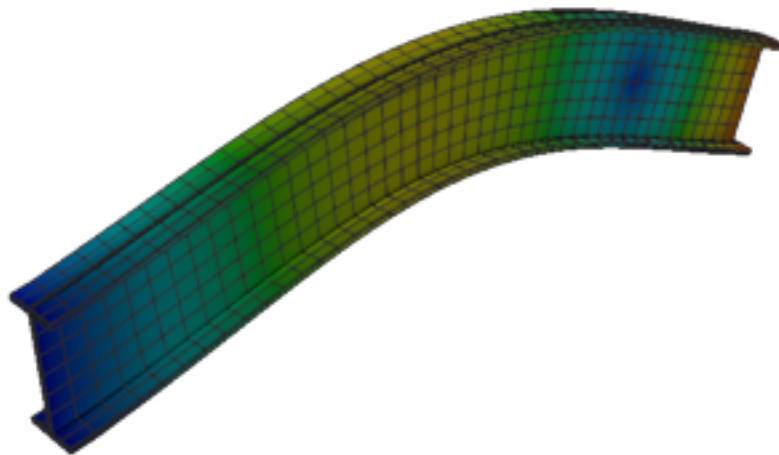


Figure 246: Sesam — mode 11, 252.742 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	252.920	+0.04	2.52532e+06	4.22e-22	4.70e-20	40.25	2.05e-11	2.17e-10	-6.344
Sesam	252.742	-0.04	2.52182e+06	2.26e-15	2.80e-16	40.28	-4.75e-08	1.67e-08	6.346

Solid, 2nd order, HEX, reduced integration

Mode 1

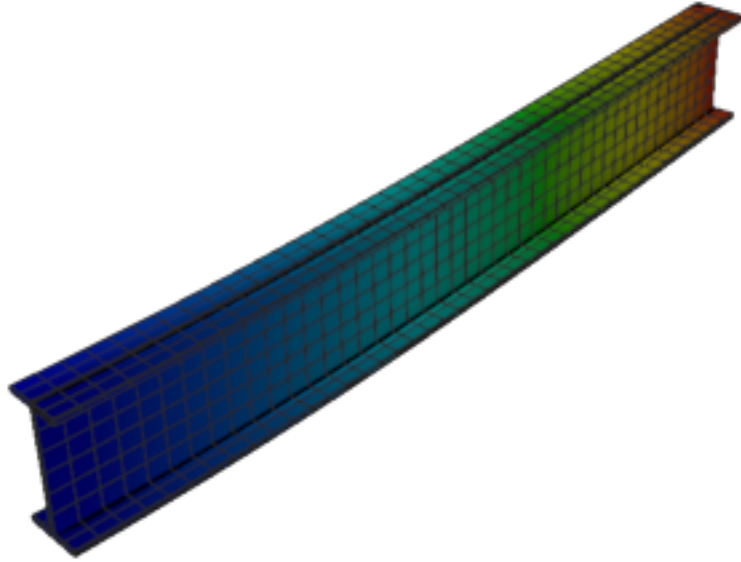


Figure 247: Abaqus — mode 1, 12.943 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	12.943	6613.2	5.11e-26	116.56	2.93e-20	-2.26e-13	10.796	1.71e-10

Mode 2

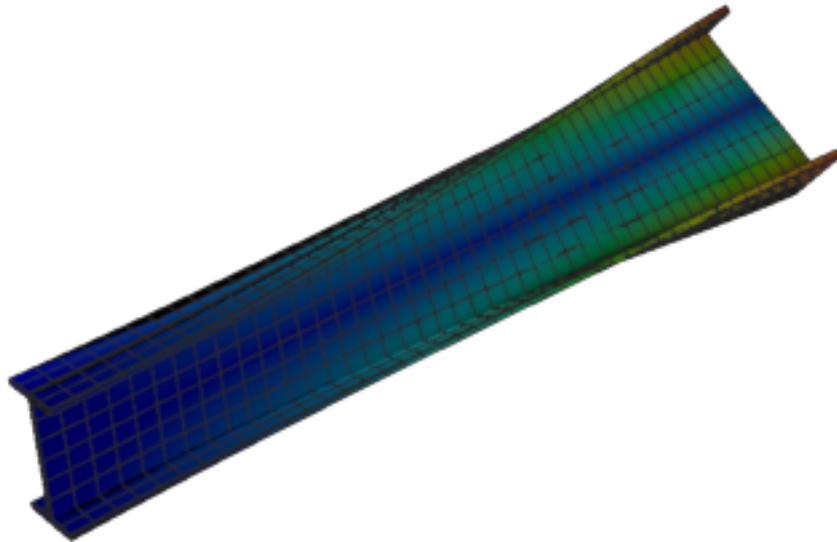


Figure 248: Abaqus — mode 2, 20.029 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	20.029	15837	2.00e-26	8.47e-16	7.79e-20	-1.41e-13	2.91e-08	-2.79e-10

Mode 3

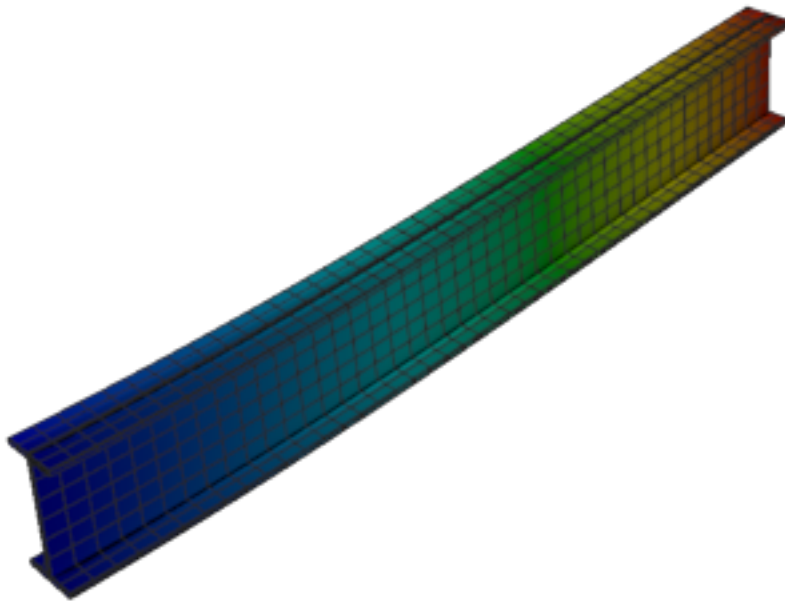


Figure 249: Abaqus — mode 3, 50.498 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	50.498	100671	1.64e-24	3.78e-20	118.41	-1.28e-12	-1.94e-10	10.882

Mode 4

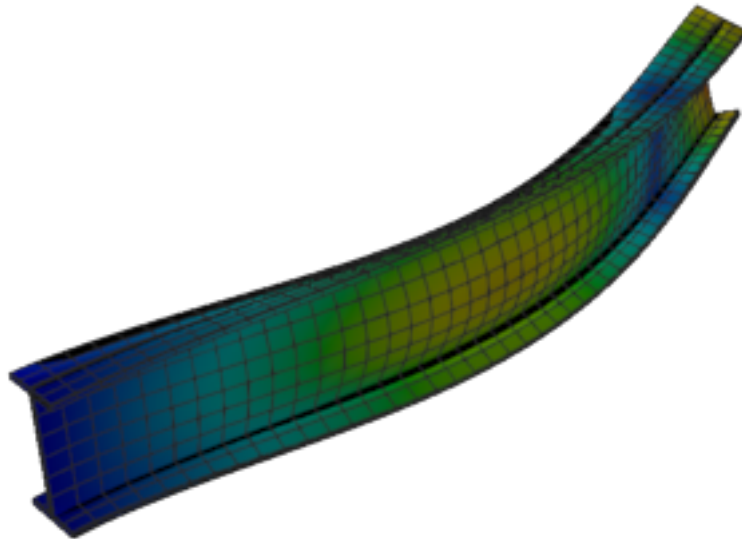


Figure 250: Abaqus — mode 4, 76.687 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	76.687	232171	2.11e-25	35.90	8.07e-22	-4.60e-13	-5.992	-2.84e-11

Mode 5

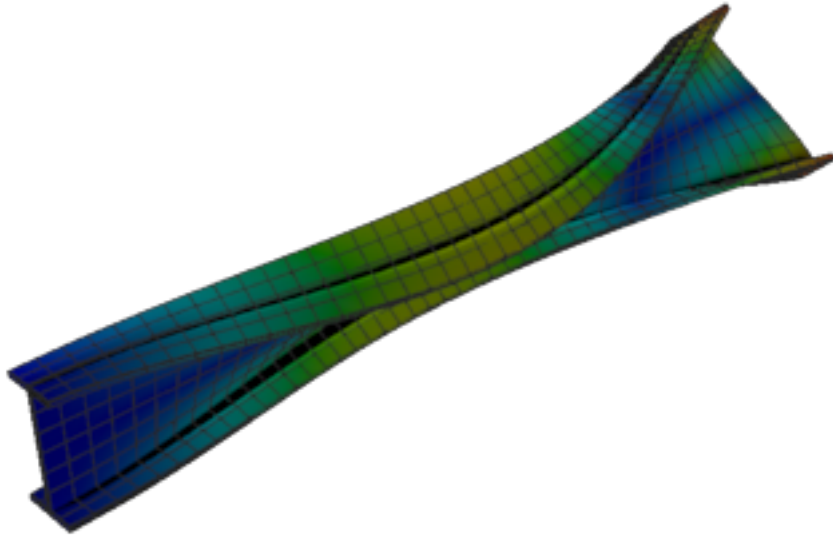


Figure 251: Abaqus — mode 5, 97.391 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	97.391	374455	1.68e-25	8.25e-19	2.52e-24	4.10e-13	-9.08e-10	-1.59e-12

Mode 6

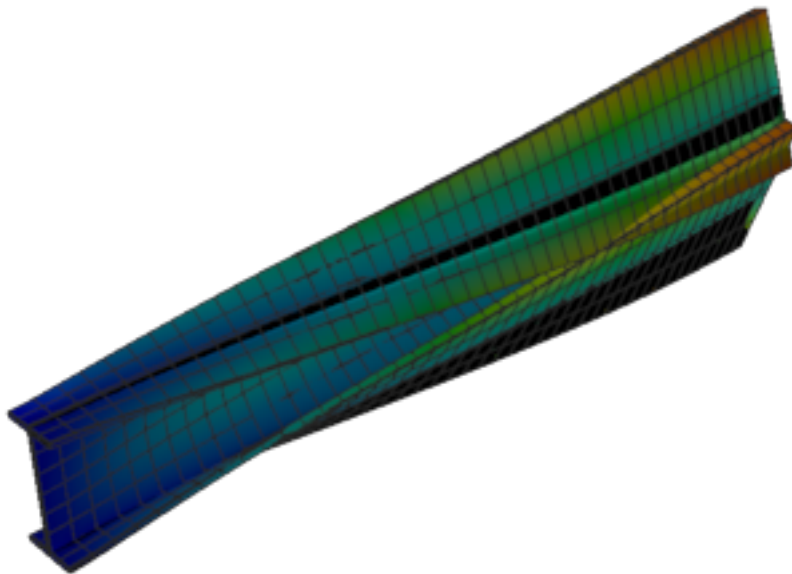


Figure 252: Abaqus — mode 6, 130.809 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	130.810	675515	5.64e-26	0.01	6.07e-21	-2.37e-13	-0.097	7.79e-11

Mode 7

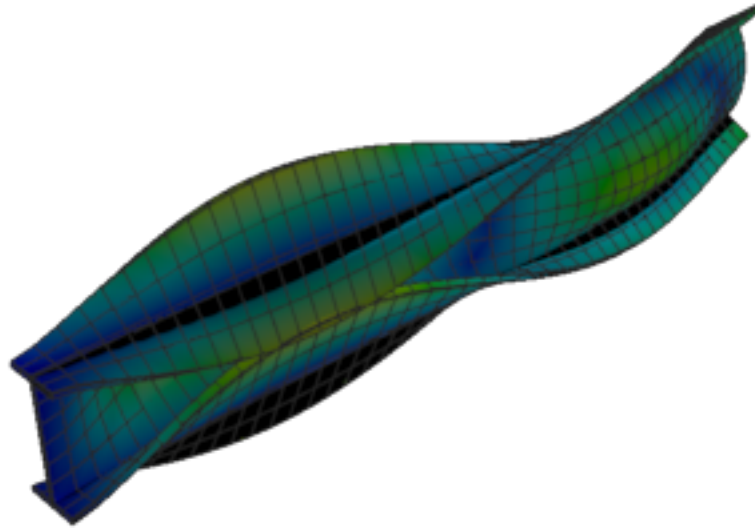


Figure 253: Abaqus — mode 7, 148.474 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	148.470	870287	1.93e-24	3.39	2.12e-22	-1.39e-12	1.840	-1.46e-11

Mode 8

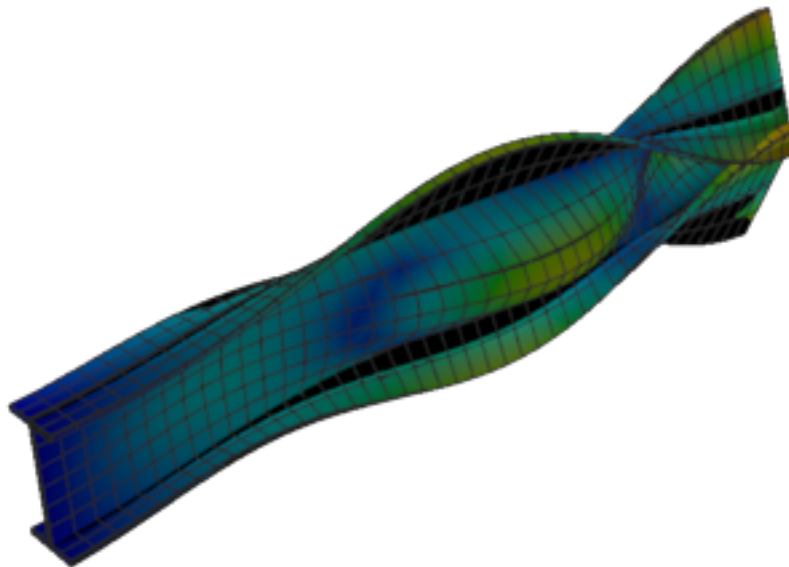


Figure 254: Abaqus — mode 8, 172.171 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	172.170	1.17026e+06	1.27e-25	5.31	9.73e-21	3.57e-13	2.304	9.86e-11

Mode 9

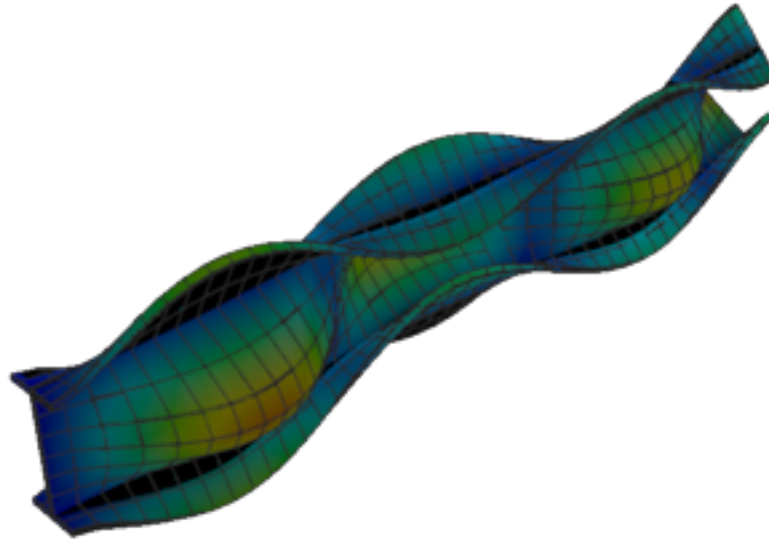


Figure 255: Abaqus — mode 9, 201.839 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	201.840	1.60831e+06	9.86e-25	0.56	1.17e-21	-9.93e-13	-0.747	3.42e-11

Mode 10

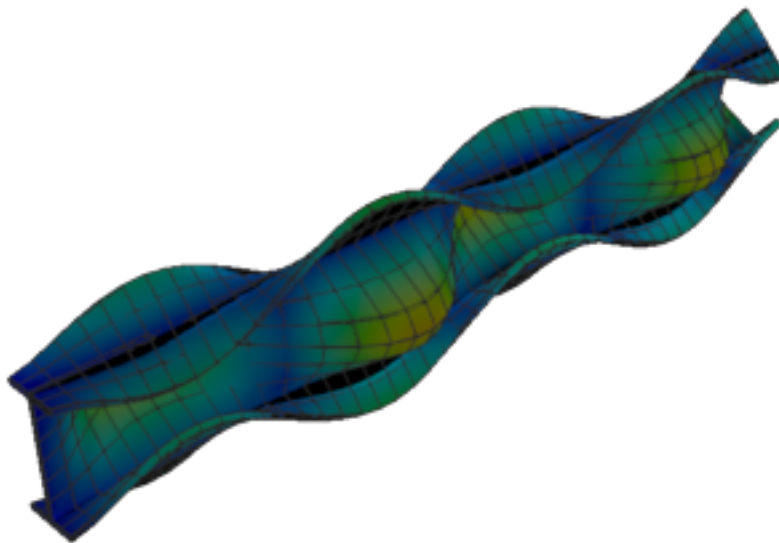


Figure 256: Abaqus — mode 10, 246.165 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	246.170	2.39228e+06	3.32e-21	1.47	1.28e-24	5.76e-11	1.212	-1.13e-12

Mode 11

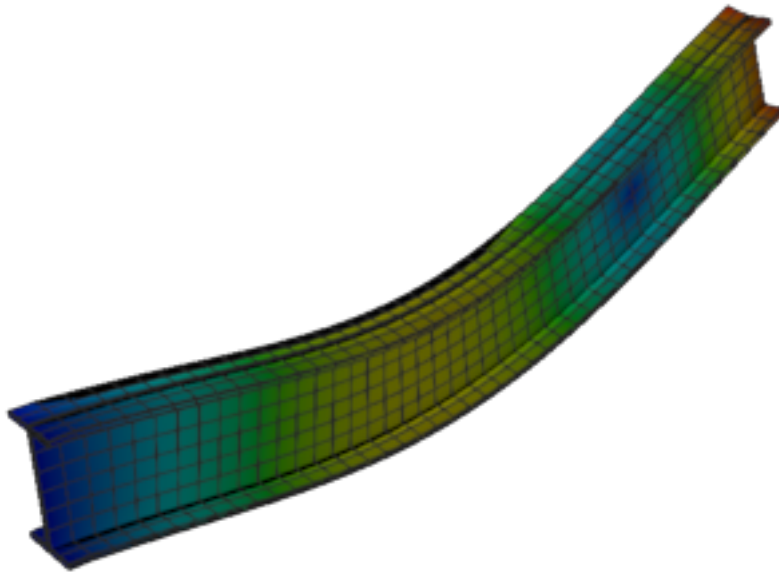


Figure 257: Abaqus — mode 11, 252.573 Hz

Solver	f [Hz]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	252.570	2.51846e+06	4.57e-21	2.25e-19	40.26	6.76e-11	4.75e-10	-6.345

Plate eigenvalue analysis

The plain and the stiffened strip, at the eigen case's 0.0625 m seed.

Shell, 1st order, plain

Mode 1

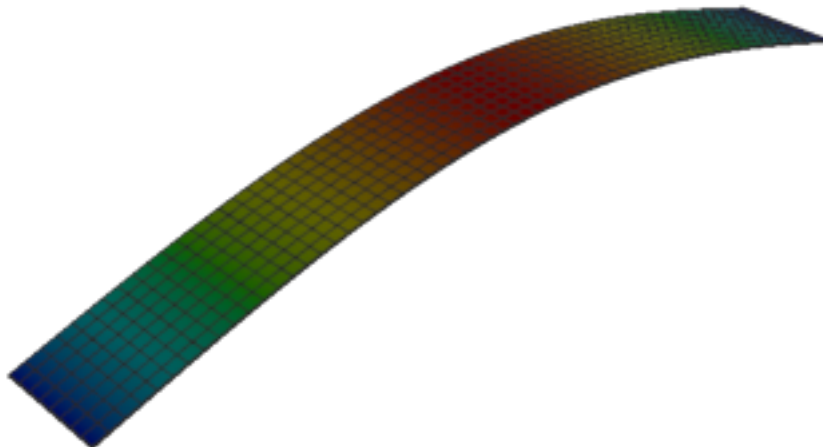


Figure 258: Abaqus — mode 1, 1.537 Hz

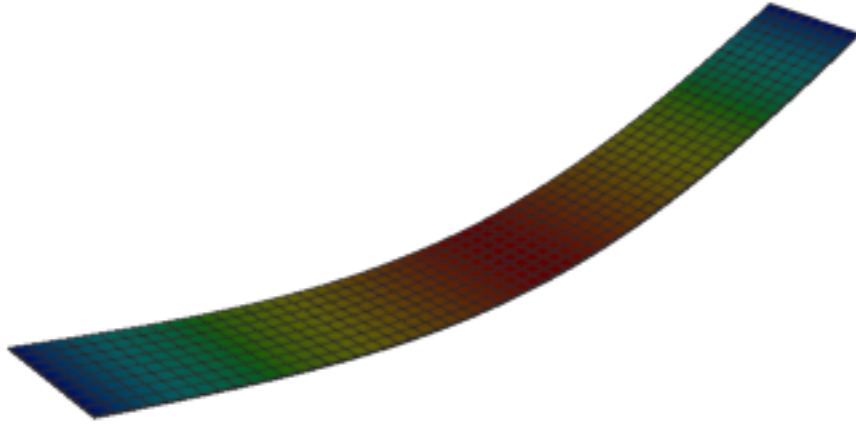


Figure 259: Sesam — mode 1, 1.537 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	1.537	+0.03	93.269	6.40e-31	3.03e-35	127.26	-8.00e-16	5.50e-18	11.281
Sesam	1.537	-4.98e-06	93.2152	2.62e-40	5.38e-45	127.17	-1.62e-20	7.33e-23	-11.277
Closed form	1.537								

Mode 2

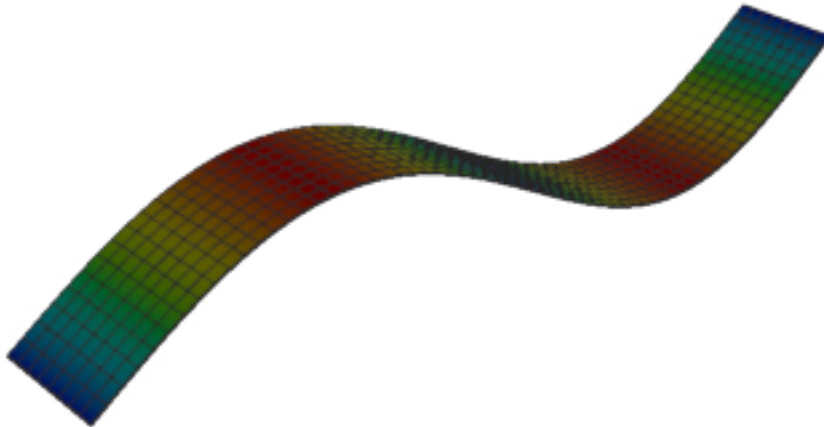


Figure 260: Abaqus — mode 2, 6.154 Hz

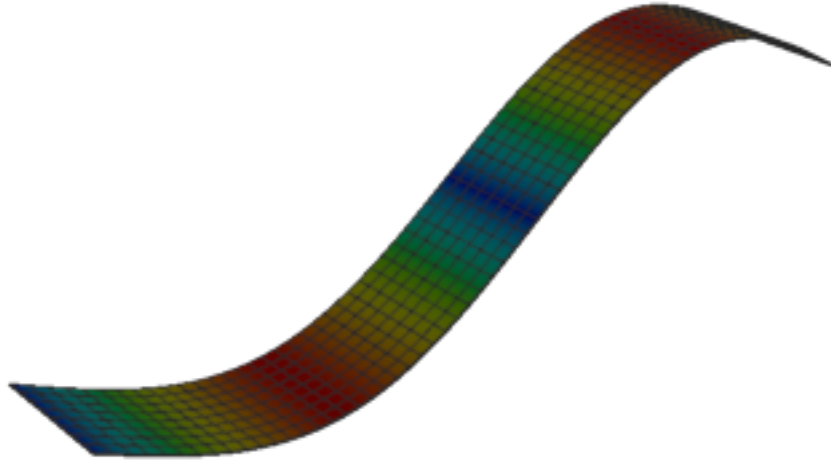


Figure 261: Sesam — mode 2, 6.146 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	6.154	+0.12	1494.9	5.42e-31	1.34e-33	5.32e-21	7.36e-16	-3.66e-17	7.29e-11
Sesam	6.146	1.13e-05	1491.44	2.17e-34	3.37e-39	9.71e-23	-1.47e-17	5.81e-20	-9.85e-12
Closed form	6.146								

Mode 3

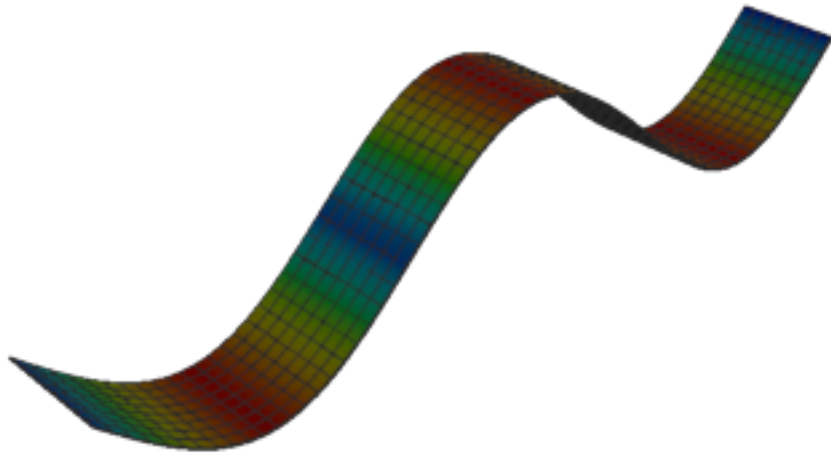


Figure 262: Abaqus — mode 3, 13.866 Hz

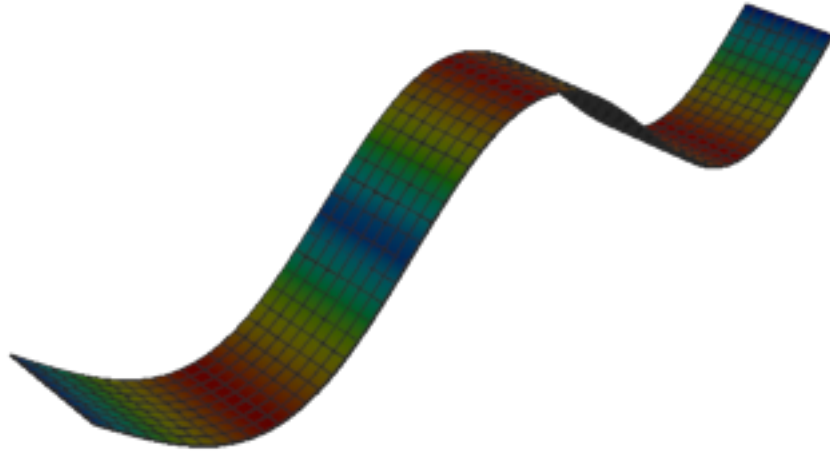


Figure 263: Sesam — mode 3, 13.829 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	13.866	+0.26	7589.9	4.43e-30	5.80e-32	14.14	2.10e-15	-2.41e-16	-3.760
Sesam	13.829	6.01e-05	7550.43	2.14e-34	3.80e-39	14.05	-1.46e-17	6.17e-20	-3.748
Closed form	13.829								

Mode 4

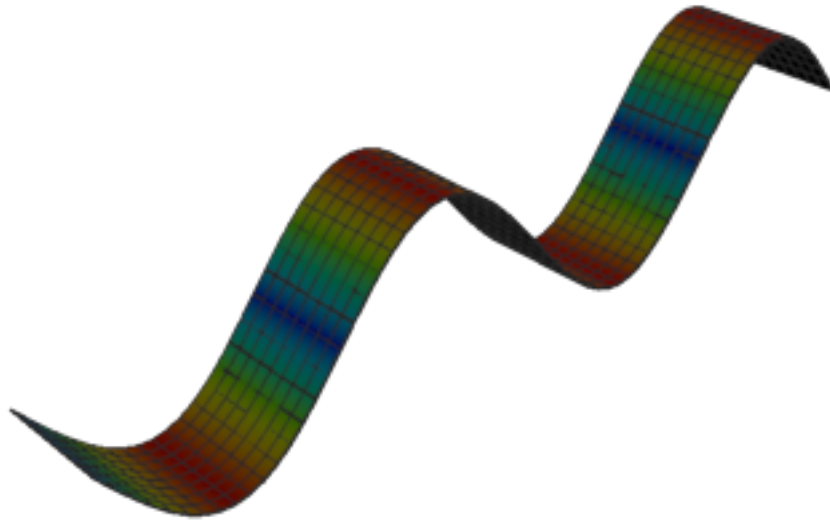


Figure 264: Abaqus — mode 4, 24.700 Hz

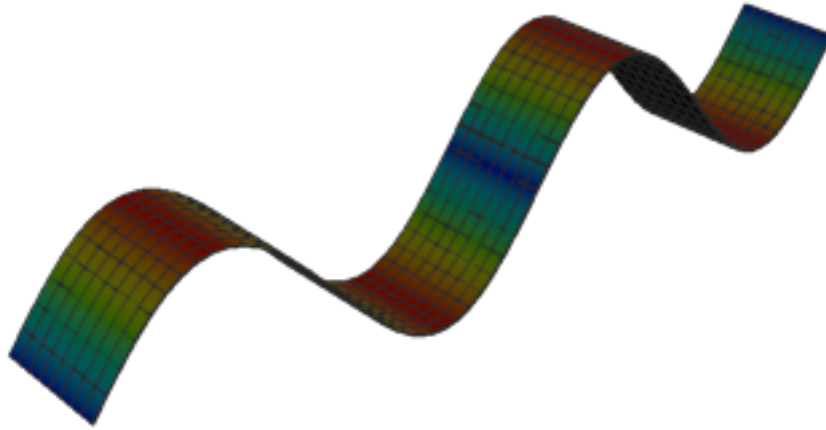


Figure 265: Sesam — mode 4, 24.586 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	24.700	+0.46	24086	1.04e-28	7.36e-32	1.83e-23	-1.02e-14	2.71e-16	4.27e-12
Sesam	24.586	1.01e-04	23863.1	1.77e-33	1.52e-36	1.13e-23	4.21e-17	1.23e-18	3.36e-12
Closed form	24.586								

Mode 5

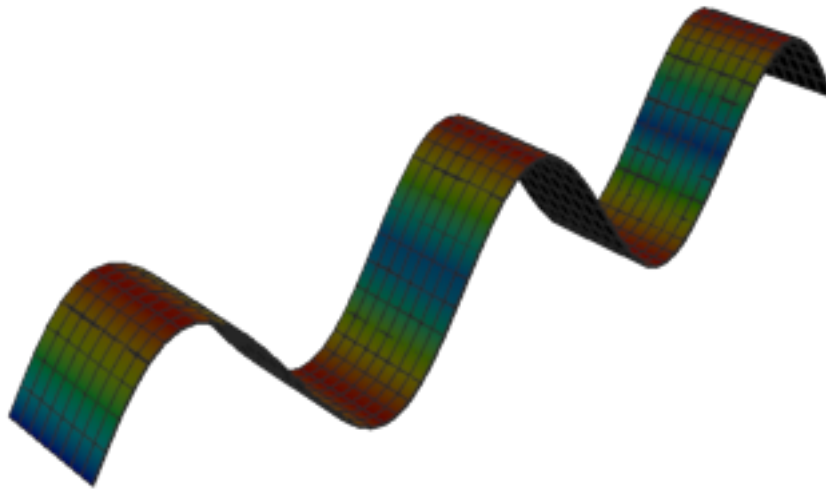


Figure 266: Abaqus — mode 5, 38.695 Hz

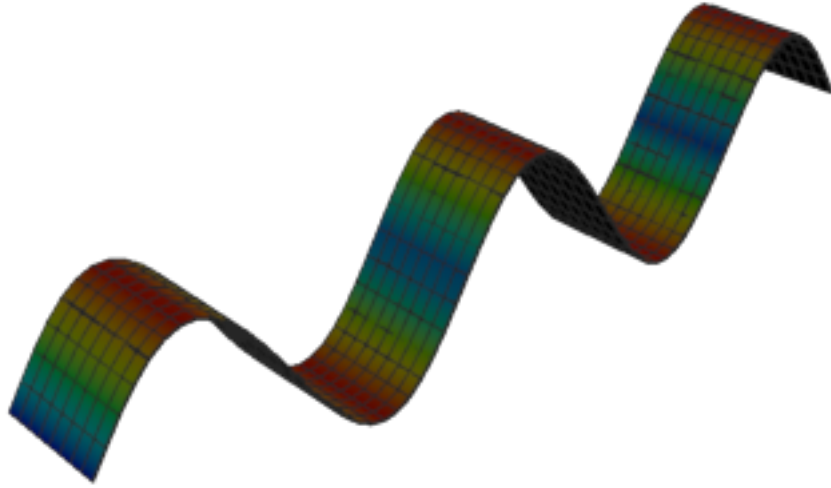


Figure 267: Sesam — mode 5, 38.415 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	38.695	+0.73	59111	1.02e-28	1.84e-30	5.09	1.01e-14	-1.36e-15	2.256
Sesam	38.415	2.42e-04	58259.8	1.78e-26	3.30e-27	5.00	1.33e-13	5.75e-14	2.236
Closed form	38.415								

Mode 6

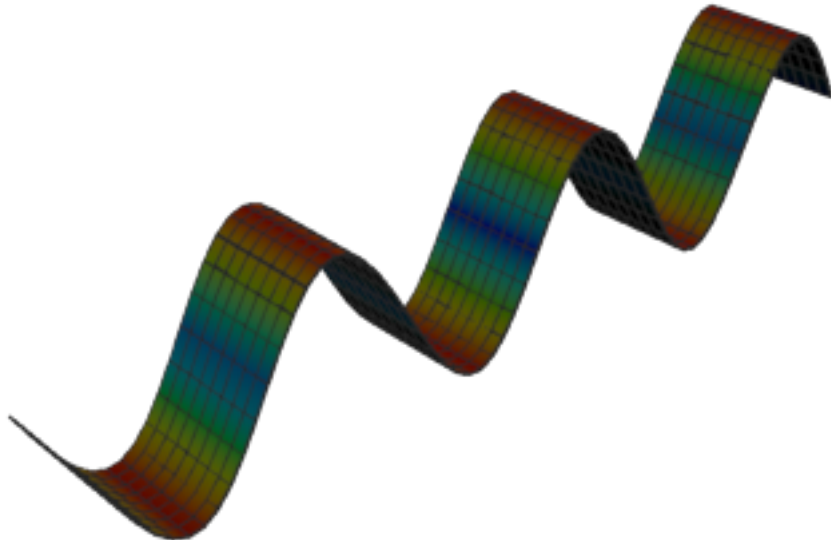


Figure 268: Abaqus — mode 6, 55.900 Hz

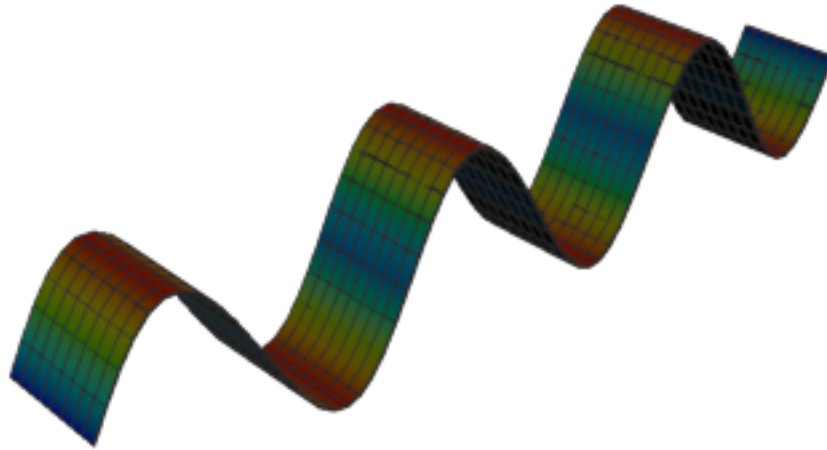


Figure 269: Sesam — mode 6, 55.318 Hz

Solver	f [Hz]	Δf vs closed form [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	55.900	+1.05	123361	4.94e-20	7.80e-26	3.09e-20	-2.22e-10	-2.79e-13	-1.76e-10
Sesam	55.318	5.30e-04	120808	1.43e-17	2.77e-18	6.63e-16	3.78e-09	1.66e-09	-2.58e-08
Closed form	55.318								

Shell, 1st order, stiffened

Mode 1

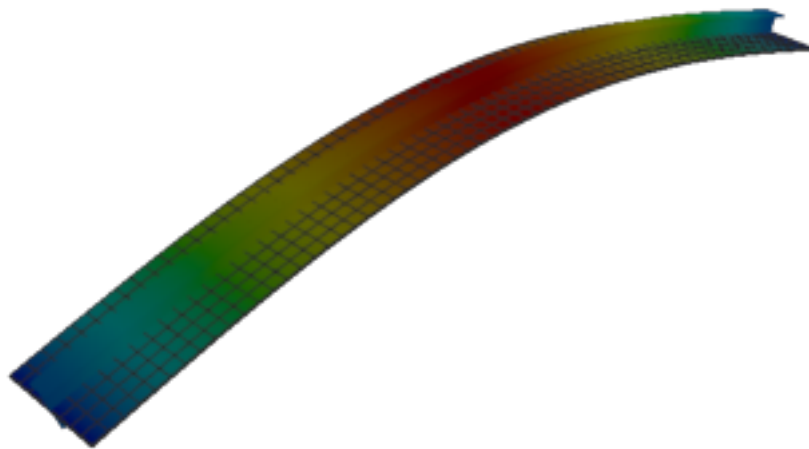


Figure 270: Abaqus — mode 1, 21.242 Hz

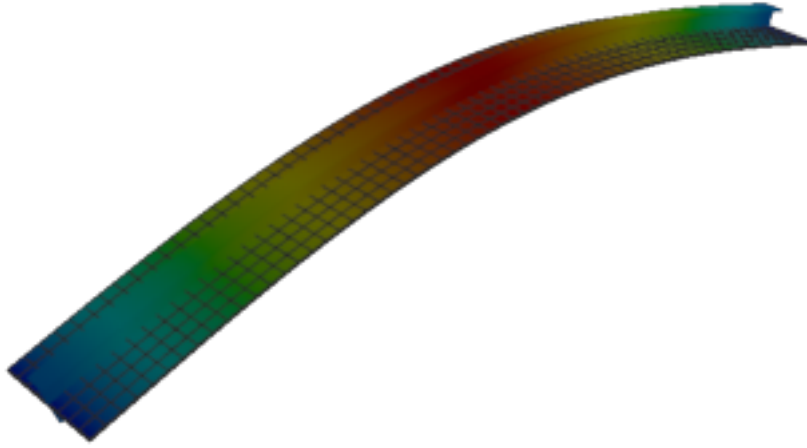


Figure 271: Sesam — mode 1, 18.917 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	21.242	+5.79	17813	0.05	9.45e-26	195.80	-0.214	-3.07e-13	13.993
Sesam	18.917	-5.79	14127.2	2.29e-32	2.10e-37	195.94	-1.51e-16	-4.58e-19	13.998

Mode 2

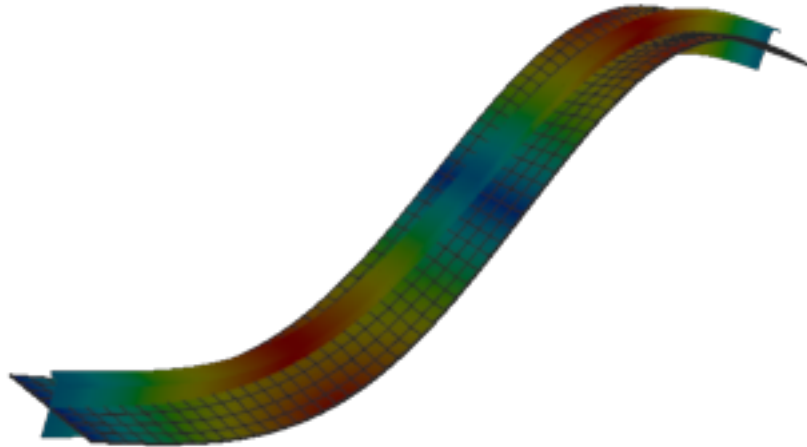


Figure 272: Abaqus — mode 2, 80.469 Hz

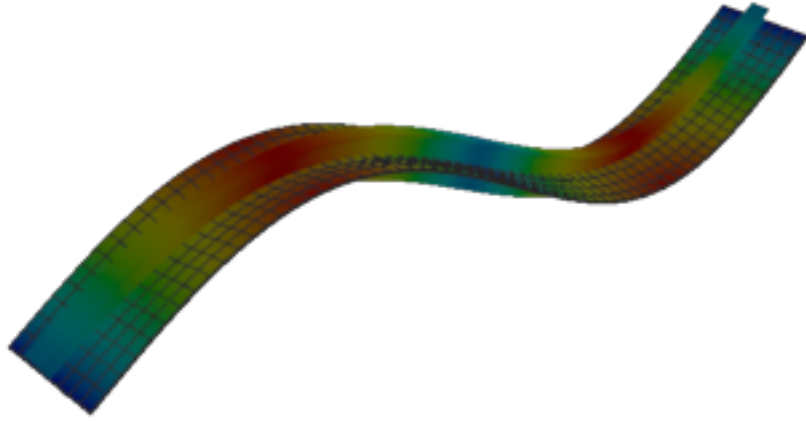


Figure 273: Sesam — mode 2, 70.063 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	80.469	+6.91	255632	0.16	1.91e-25	3.42e-05	0.403	4.37e-13	0.006
Sesam	70.063	-6.91	193794	4.69e-34	9.89e-36	8.76e-26	2.17e-17	3.14e-18	2.96e-13

Mode 3

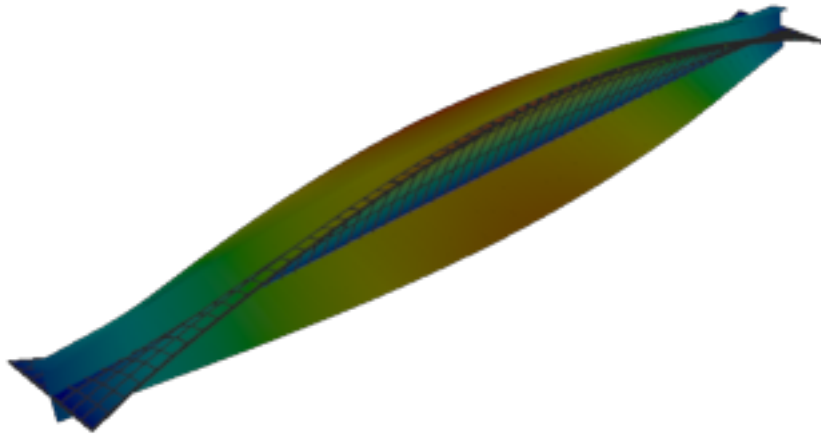


Figure 274: Abaqus — mode 3, 93.088 Hz

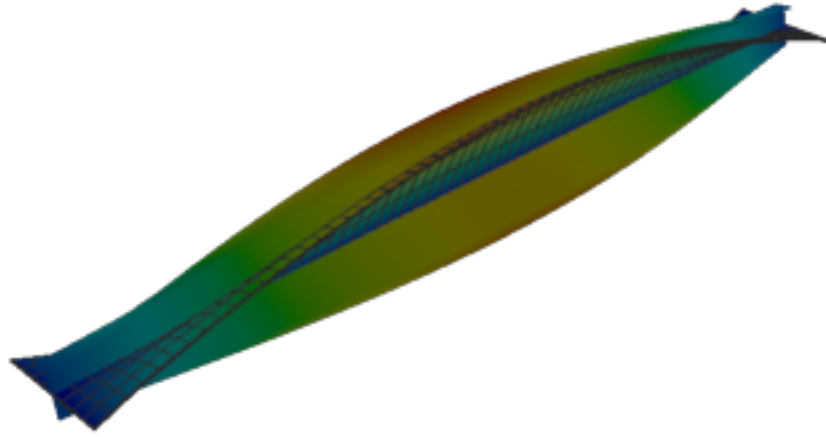


Figure 275: Sesam — mode 3, 92.575 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	93.088	+0.28	342097	2.75e-24	3.95	1.03e-23	1.66e-12	1.988	3.22e-12
Sesam	92.575	-0.28	338332	5.73e-33	2.02e-07	3.30e-28	-7.57e-17	4.49e-04	1.82e-14

Mode 4

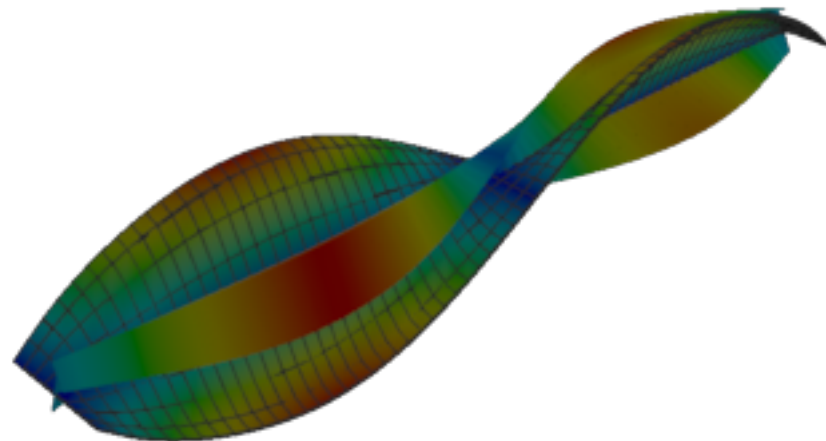


Figure 276: Abaqus — mode 4, 106.618 Hz

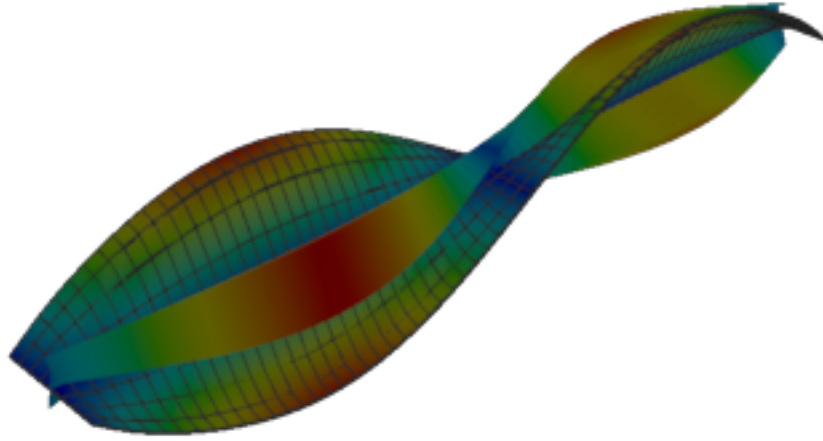


Figure 277: Sesam — mode 4, 100.998 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	106.620	+2.71	448765	1.14e-22	2.35e-08	5.91e-22	1.07e-11	1.53e-04	-2.43e-11
Sesam	100.998	-2.71	402700	1.38e-29	1.02e-09	1.26e-26	-3.71e-15	3.19e-05	1.12e-13

Mode 5

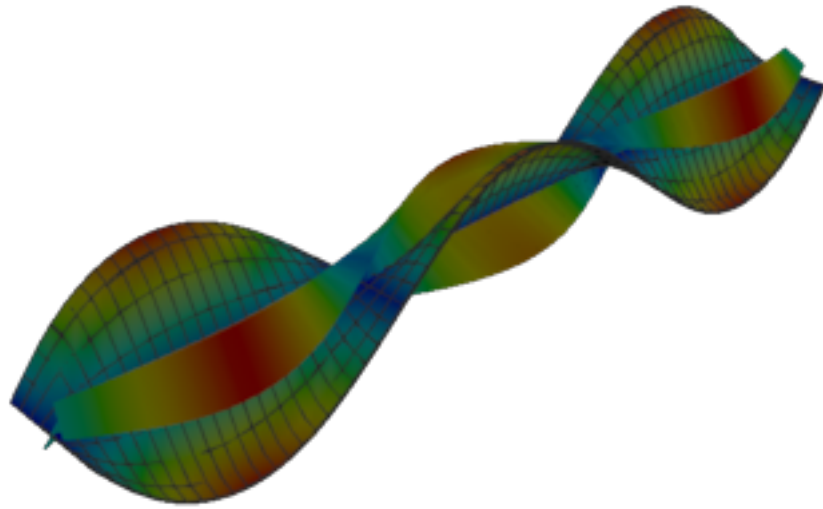


Figure 278: Abaqus — mode 5, 128.504 Hz

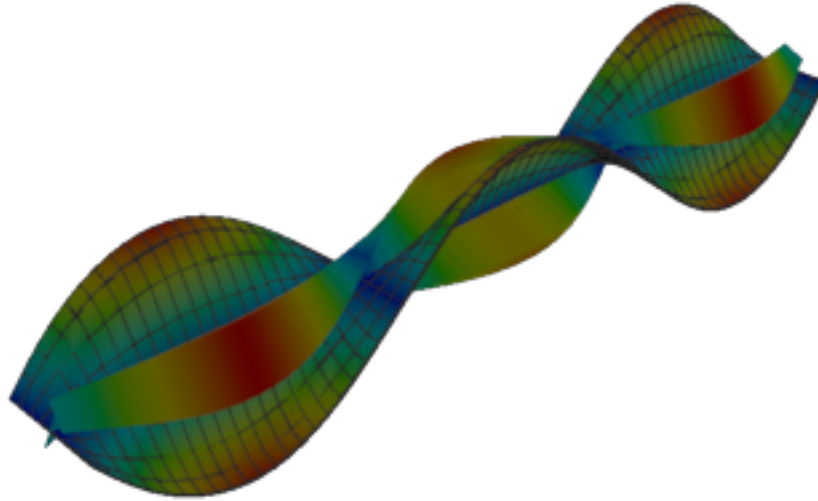


Figure 279: Sesam — mode 5, 115.222 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	128.500	+5.45	651919	5.66e-20	0.39	1.44e-19	2.38e-10	-0.624	3.79e-10
Sesam	115.222	-5.45	524118	4.47e-23	4.62e-07	1.89e-22	-6.69e-12	-0.001	1.37e-11

Mode 6

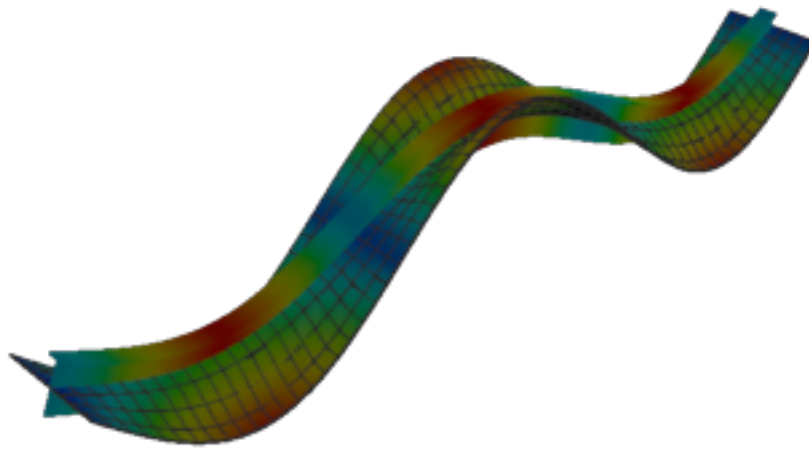


Figure 280: Abaqus — mode 6, 155.525 Hz

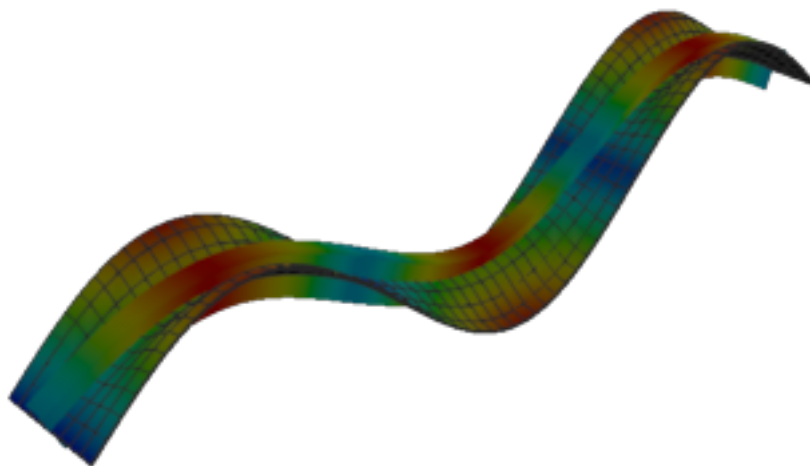


Figure 281: Sesam — mode 6, 134.344 Hz

Solver	f [Hz]	Δf vs mean [%]	λ [rad ² /s ²]	Meff X [kg]	Meff Y [kg]	Meff Z [kg]	Γ X	Γ Y	Γ Z
Abaqus	155.520	+7.31	954899	0.26	3.11e-16	20.18	0.507	1.76e-08	-4.492
Sesam	134.344	-7.31	712516	3.13e-16	2.60e-18	20.78	-1.77e-08	1.61e-09	4.558

Plate static analysis

The deflected strip under 1 kPa, plain and stiffened, at the same 0.0625 m seed. The other seeds deform into the same shape; their convergence is in the summary table.

Shell, 1st order, plain, seed 0.0625 m

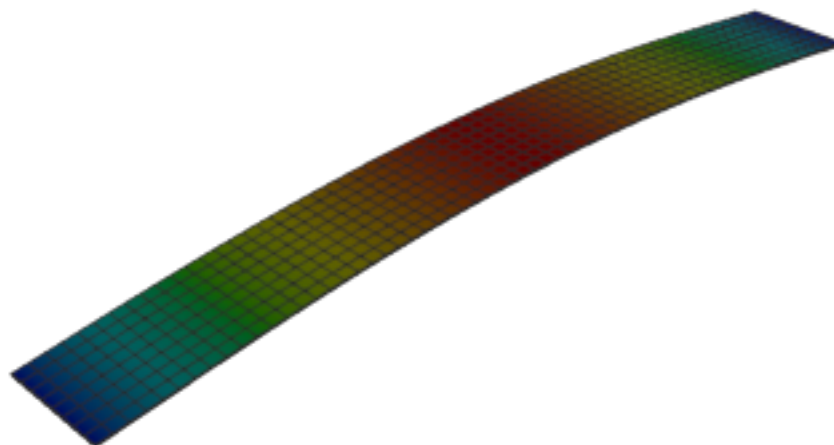


Figure 282: Abaqus — displacement

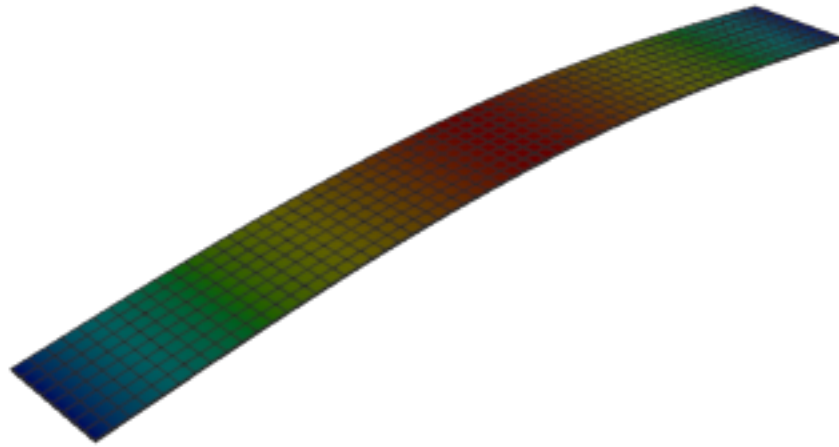


Figure 283: Sesam — displacement

Solver	Mid-span u_z [mm]	Δ vs closed form [%]	Peak u_z [mm]	Peak u_x [mm]	Peak u_y [mm]
Abaqus	173.2686	-0.04	173.2686	5.59e-17	4.12e-29
Sesam	173.2995	-0.02	173.2995	0.0000	0.0000
Closed form	173.3333				

Shell, 1st order, stiffened, seed 0.0625 m

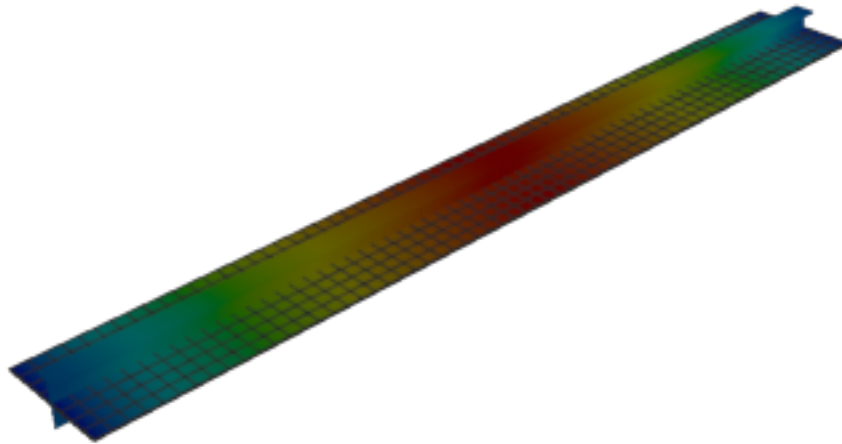


Figure 284: Abaqus — displacement

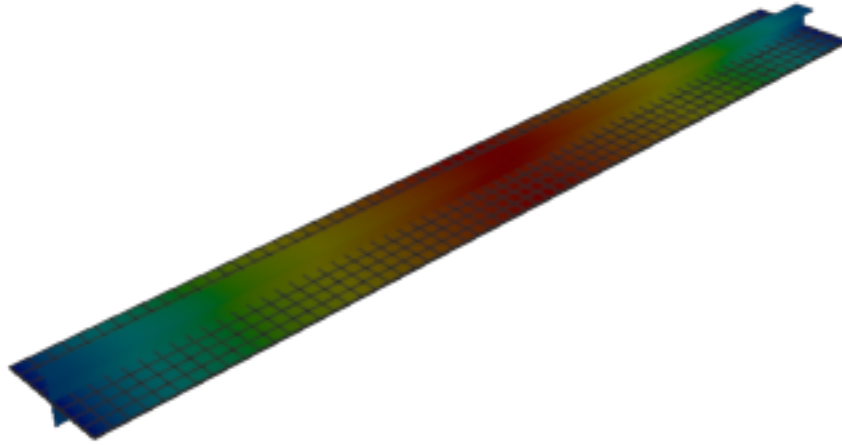


Figure 285: Sesam — displacement

Solver	Mid-span u_z [mm]	Δ vs mean [%]	Peak u_z [mm]	Peak u_x [mm]	Peak u_y [mm]
Abaqus	0.5855	-11.59	0.5934	0.0118	2.12e-05
Sesam	0.7390	+11.59	0.7474	1.25e-17	2.34e-17