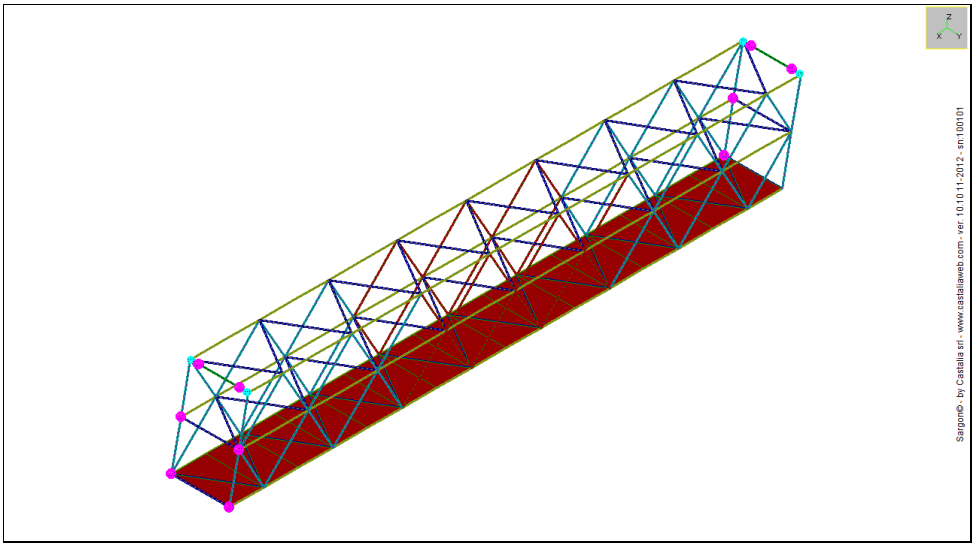
SARGON BUCKLING SOLVER	TEST 15	Tested by: M. Croci
VALIDATION, CROSS CHECKS, RELIABILITY, BENCHMARK	rev.1 18/12/12	Checked by: P. Rugarli



MODEL TO BE CHECKED (A)			
	MODEL NAME	OUTPUT FILE	ANALYSIS TYPE
A	buckling_15.wsr	.bou	Sargon buckling

REFERENCE MODELS			
	MODEL NAME	OUTPUT FILE	ANALYSIS TYPE
B	buckling_15.nas	.out	NEiNastran buckling
C	buckling_15_soclever.wsr	.sou	Sargon second order nonlinear

CROSS-CHECK
The multiplier computed by Sargon buckling (A) is compared to those computed in reference models: % difference (A-X) is equal to (A-X)/X*100, where X value is the result of considered reference X model (for example B).

A	B	% diff.(A-B)	C	% diff.(A-C)
9,0257	9,01864	0,08	8,84765	2,01

Settings for Sargon analyses:
- Buckling: modes: 1; subspace order: 10; tolerance: 1e-6; max number of iterations: 50
- Second order non linear: load steps: 1; tolerance: 1e-6; max number of iterations: 10

Note well: the second order analysis performed by Sargon solver (SOCLEVER) is different from a buckling analysis. Second order step by step does not assume that internal forces grow linearly with load multiplier, as in eigenvalue analysis. Multiplier by second order step by step solver were got by artificially increasing 10 or 100 times the load applied, so that convergence could not be reached. The multiplier < 1 is then multiplied times the increasing factor applied.

Nastran model was automatically created by Femap from the neutral file automatically created by Sargon (.wsr → .neu → .nas).

In currently tested version of Sargon buckling solver, stiffness matrix is assembled for beam and truss elements only