

## #1336: OptiStruct – Fast Contact

**Product:** OptiStruct

**Product Version:** OptiStruct 14.0 or above

### Topic Objective

Fast Contact Analysis with OptiStruct.

### Topic Detail

#### What is Fast Contact?

- It is a fast contact formulation compared to the standard nonlinear formulation
- Performance enhancement for non-linear contact analysis, lot faster compared to other formulations
- It is applicable when the only non-linearity in the model is contact (no friction)
- Non-linear geometry and material are also not supported

#### Limitations

- No friction allowed
- No large displacement non-linear analysis
- No non-linear material
- No surface to surface discretization
- No finite sliding

#### How to setup in OptiStruct?

##### Contact/CGAP(G) based fast contact

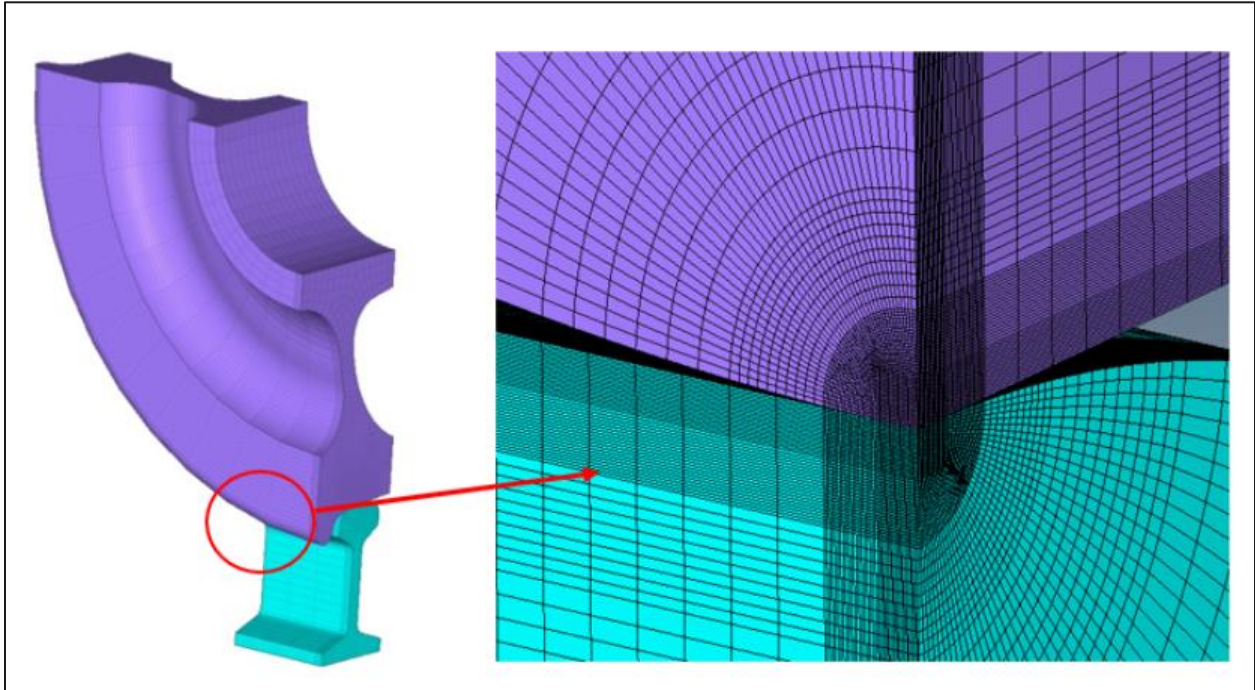
- Setup the same as the N2S approach
- Contact interface is defined using CONTACT card with N2S discretization and no friction
- Activated using PARAM, FASTCONT, YES

##### MPC based fast contact (old NASTRAN approach)

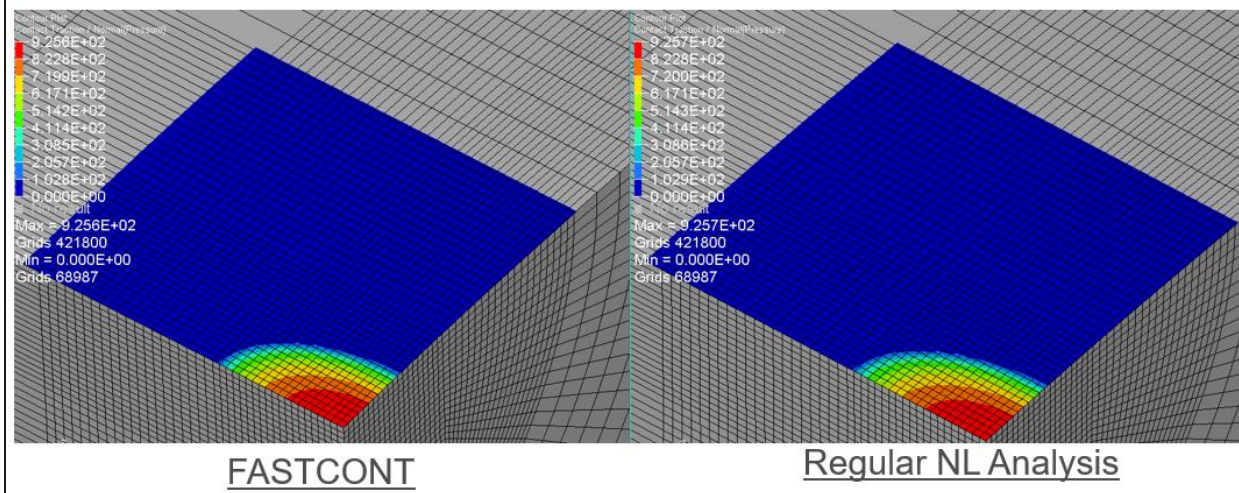
- Useful for legacy input data files.
- Used to setup linear solution using MPC's, SUPORT, SPC
- SPOINT's required to relate SUPORT, SPC to MPC entry
- Activated using PARAM, CDITER

#### Example: Wheel Rail Interface using Fast Contact

Total DOFs = 1031779, # of contact element = 1681 Single subcase 4 CPUs (SMP) Minimum core job
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	CPU Time	WALL Time	RAM (MB)	DISK(MB)
Full Nonlinear Analysis	10:06:59	02:37:35	1654	18739
FASTCONT	01:02:55	00:18:48	1654	34596



Same results (Contact Pressure)