

## #1345: OptiStruct – Zone Based Discrete Composite Free-Size Optimization

**Product:** OptiStruct

**Product Version:** OptiStruct 2017.2.2 or above

### Topic Objective

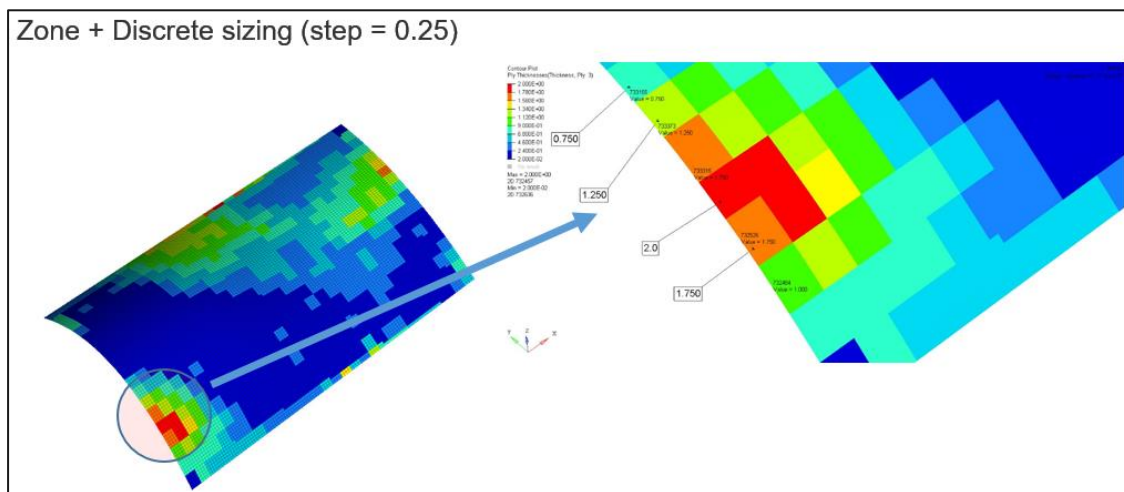
Zone based discrete composite free-size optimization with OptiStruct.

### Topic Detail

Zone Based Free-Size simplifies or entirely bypasses the ply shape interpretation stage, at the cost of decreasing the design freedom. Discreteness in Free-Size allows the optimized design to be much closer to the final design.

Zone Based + Discreteness => Powerful Free-size optimization which generates the detail design in just one step!

- Discrete algorithm works best when used together with Zone.
- Zone based, or Discreteness does not need to be used simultaneously. Each of those will be activated by separate option in DSIZE.



### Automatic generation of patch zone

- Automatically assign elements to groups with a predefined size
- Simplifies or bypasses the ply shape interpretation at the cost of decreasing the design freedom
- Reduces the size of the optimization problem (one design variable per group) though sensitivity analysis is not affected
- Compatible with user-defined groups and with manufacturing constraints such as pattern grouping and pattern repetition
- Groups can be defined based on edge length, area, number of elements or number of layers

**DSIZE:** Bulk Data Entry

DSIZE	ID	...	...					
+	GROUP	AUTO	SIZE	OPTION				
	EG1	EG2	EG3	...				

**Example:** Automatic generation of patch zone for free-size

