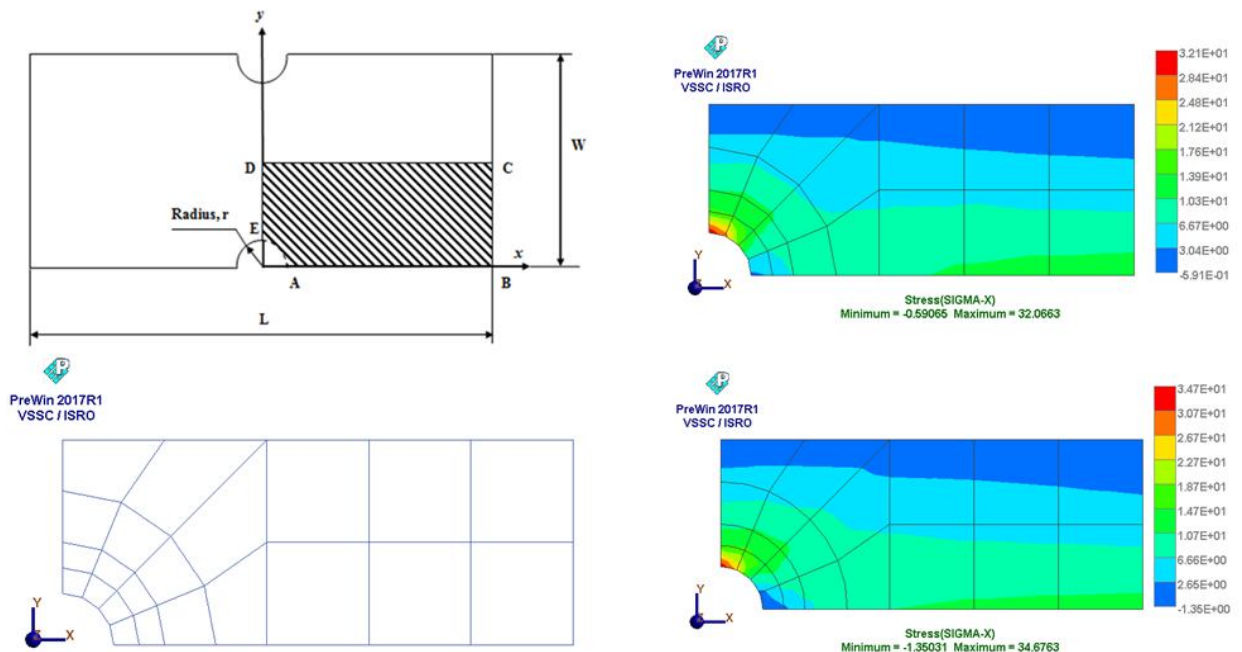


## Static analysis of flat bar with edge notches



**Load** : Distributed load in  $x$  direction varies linearly from  $10N/mm$  at B to  $0N/mm$  at C.

**Boundary condition** : Along DC,  $U_x = 0$ ; along DE,  $U_x = 0$ ;  $U_y = 0$  at point D

**Material property** :  $E = 200\text{ GPa}$ ,  $\nu = 0.3$

**Geometric property** : Thickness =  $1.0\text{ mm}$ , length =  $200\text{ mm}$ , width =  $80\text{ mm}$ , notch radius =  $10\text{ mm}$

**Element type** :  
 Case 1 4-node plane stress element  
 Case 2 8-node plane stress element

Finite element statistics		Number of elements	Number of nodes	Degrees of freedom
Case 1	:	22	34	57
Case 2	:	22	89	158

Axial stress, $\sigma_x$ (MPa) at point E			
Cases	NAFEMS	FEAST <sup>SMT</sup>	NASTRAN <sup>®</sup>
1	32.70	32.06	28.70
2		34.67	29.80