

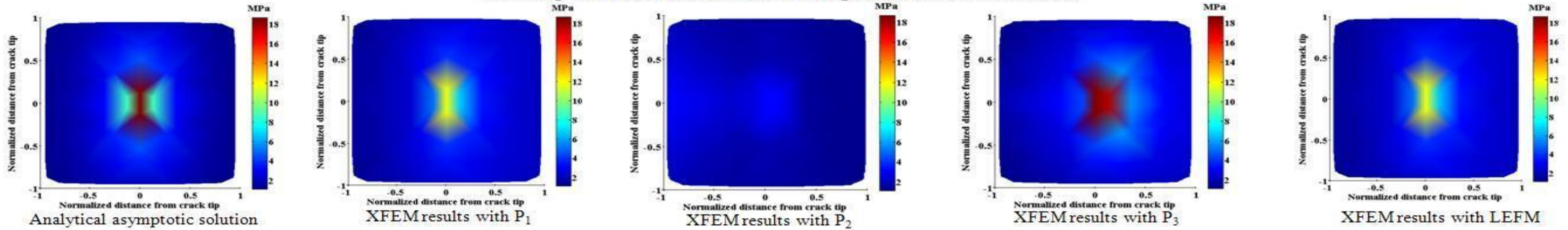


“XFEM Fracture Analysis of Plates in Large Deformation Problems”

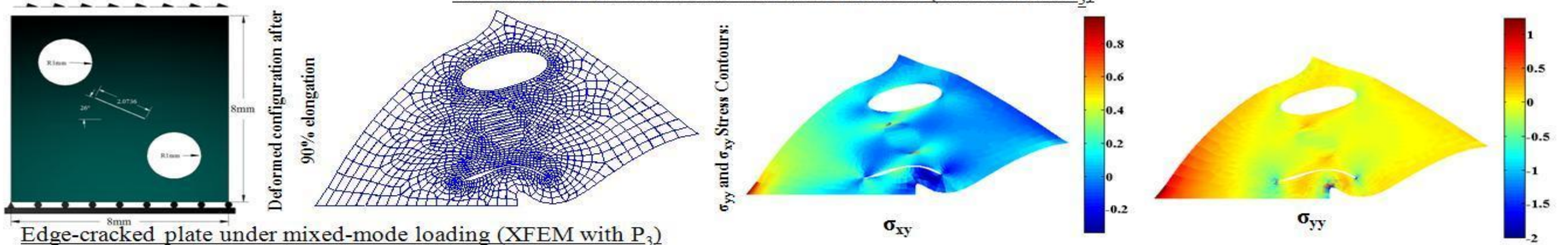
Reza Rashetnia and Soheil Mohammadi



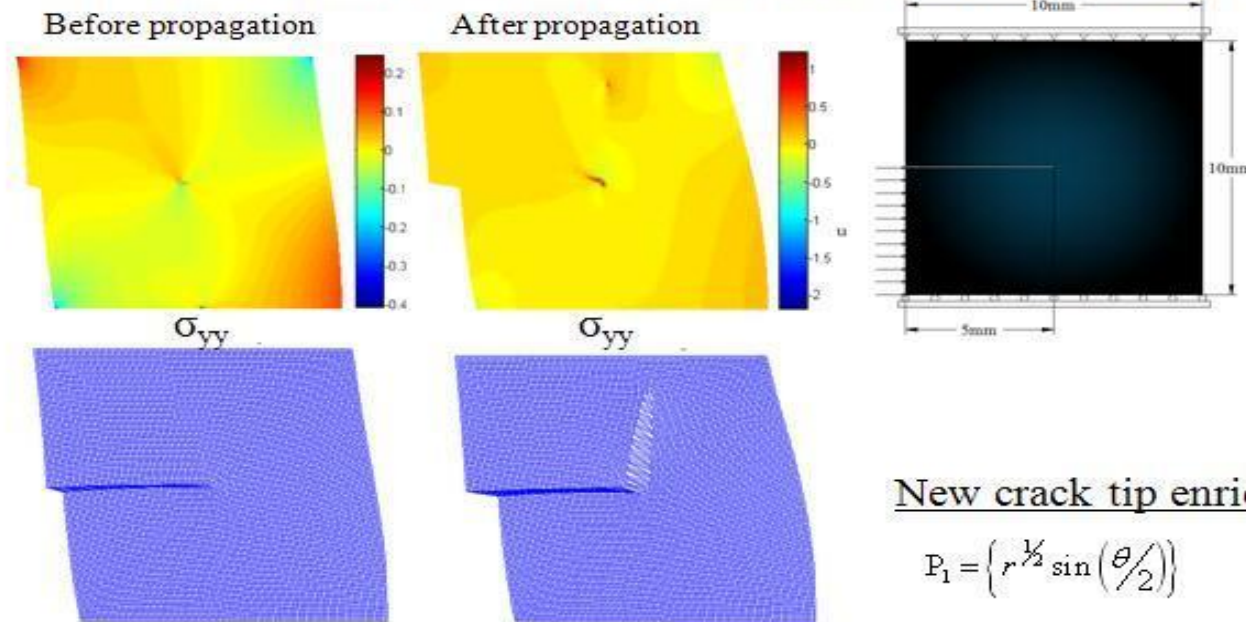
Near tip stress-fields for different tip enrichment functions



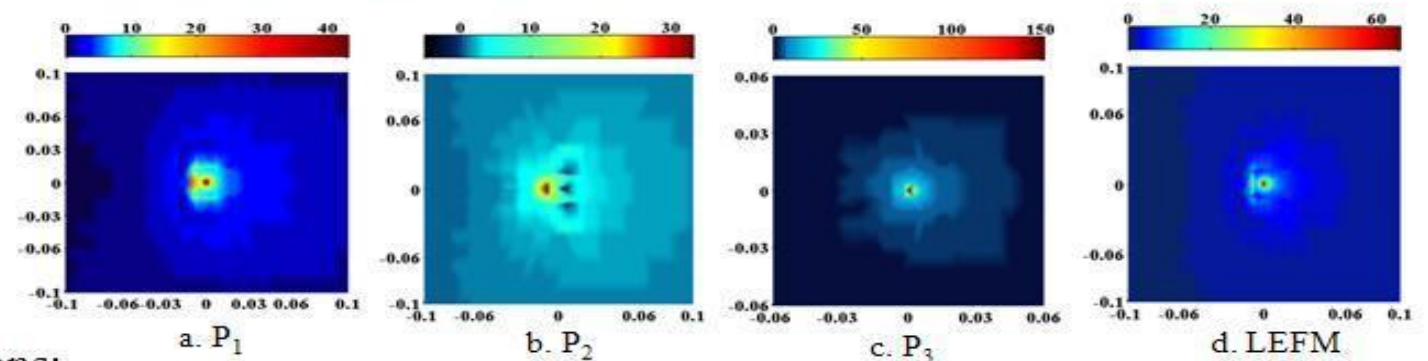
Inclined cracked membrane with internal holes (XFEM with P₃)



Edge-cracked plate under mixed-mode loading (XFEM with P₃)



sigma_yy stress contours around the crack tip



New crack tip enrichment functions:

$$P_1 = \left\{ r^{1/2} \sin\left(\frac{\theta}{2}\right) \right\} \quad P_2 = \left\{ r^{3/2} \sin\left(\frac{\pi\theta}{2\omega}\right) \right\} \quad P_3 = \left\{ \ln r \sin\left(\frac{\theta}{2}\right), \sqrt{r} \cos\left(\frac{\theta}{2}\right), \sqrt{r} \cos\left(\frac{3\theta}{2}\right), \sqrt{r} \sin\left(\frac{\theta}{2}\right), \sqrt{r} \sin\left(\frac{3\theta}{2}\right) \right\}$$