

hp-adaptivity for 2D elasticity with Tresca friction

P. Doersek and J.M. Melenk

We consider *hp*-finite element methods for the Lamé Signorini problem with Tresca friction in 2D. First, we analyse the a priori convergence rate of the primal method. In particular, we focus on the effect of quadrature for the nondifferentiable friction functional in the present context of high order methods.

Second, we analyse the primal-dual formulation and obtain an a priori convergence rate estimate. We generalise the residual error indicator to this high order primal-dual context. This residual error estimator is used in an *hp*-adaptive algorithm. Numerical experiments show exponential convergence.