Metamodel based optimization of material parameters in a finite element simulation of tensile tests JUSTIN BROWN, CAVENDISH MCKAY, Marietta College — We determine the optimum set of parameters for simulating a tensile test of a sample of Zytel® nylon resin in a finite element model. Using manufacturer supplied data and initial tensile measurements as starting data, we use a metamodel based optimization scheme to iteratively improve the choice of parameters. The commercial finite element solver LS-DYNA and optimization package LS-Opt are used to assess the quality of the material parameter choice. A map of the response surface is presented to illustrate some challenges with the metamodel based approach.

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