DSC – Disruption Simulation Code for Tokamaks and ITER applications[1] S.A. GALKIN, J.E. GRUBERT, FAR-TECH Inc., L.E. ZAKHAROV, PPPL — Arguably the most important issue facing the further development of magnetic fusion via advanced tokamaks is to predict, avoid, or mitigate disruptions. This recently became the hottest challenging topic in fusion research because of several potentially damaging effects, which could impact the ITER device. To address this issue, two versions of a new 3D adaptive Disruption Simulation Code (DSC) will be developed. The first version will solve the ideal reduced 3D MHD model in the real geometry with a thin conducting wall structure, utilizing the adaptive meshless technique. The second version will solve the resistive reduced 3D MHD model in the real geometry of the conducting structure of the tokamak vessel and will finally be parallelized. The DSC will be calibrated against the JET disruption data and will be capable of predicting the disruption effects in ITER, as well as contributing to the development of the disruption mitigation scheme and suppression of the RE generation. The progress on the first version of the 3D DSC development will be presented.

S.A. Galkin
FAR-TECH Inc.