

Abstract Submitted  
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**Progress on the DPASS project**<sup>1</sup> SERGEI A. GALKIN, I.N. BOGATU, V.A. SVIDZINSKI, FAR-TECH Inc. — A novel project to develop Disruption Prediction And Simulation Suite (DPASS) of comprehensive computational tools to predict, model, and analyze disruption events in tokamaks has been recently started at FAR-TECH Inc. DPASS will eventually address the following aspects of the disruption problem: MHD, plasma edge dynamics, plasma-wall interaction, generation and losses of runaway electrons. DPASS uses the 3-D Disruption Simulation Code (DSC-3D) as a core tool and will have a modular structure. DSC is a one fluid non-linear, time-dependent 3D MHD code to simulate dynamics of tokamak plasma surrounded by pure vacuum B-field in the real geometry of a conducting tokamak vessel. DSC utilizes the adaptive meshless technique with adaptation to the moving plasma boundary, with accurate magnetic flux conservation and resolution of the plasma surface current. DSC has also an option to neglect the plasma inertia to eliminate fast magnetosonic scale. This option can be turned on/off as needed. During Phase I of the project, two modules will be developed: the computational module for modeling the massive gas injection and main plasma respond; and the module for nanoparticle plasma jet injection as an innovative disruption mitigation scheme. We will report on this development progress.

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