Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

An Adaptive Mesh Refined Gradient-Augmented Level Set Method[1] JEAN-CHRISTOPHE NAVE, McGill University, BENJAMIN SEIBOLD, Temple University, RUBEN ROSALES, MIT — The Gradient-Augmented Level Set method (GA-LS) was introduced at the 62^{nd} annual APS-DFD meeting by Nave et al. (arXiv:0905.3409). Leveraging the optimal locality and unconditional stability of the method, we present a natural extension to adaptive quad-tree meshes. The new method possesses many desirable features such as improved mass conservation, reduced computational effort, and is, due to the optimal locality property of the underlying GA-LS, very easy to implement. Several key benchmark tests will be presented to help demonstrate the benefits of the approach, and the overall simplicity of the algorithm.

[1]This research was supported by NSF grant DMS-0813648.

Jean-Christophe Nave
McGill University

Date submitted: 07 Aug 2010 Electronic form version 1.4