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G. Moon and **S. Raynor*** (raynorsg@wfu.edu). *A Two-Phase Free Boundary Problem in Two Dimensions*. Preliminary report.

In this work, we review a classical free boundary problem with several applications in jets, fluids, and heat flow. We prove a new result about the regularity of such a solution in two dimensions and discuss simulations of the problem on simple domains. (Received September 05, 2016)