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Gieri Simonett* (gieri.simonett@vanderbilt.edu), Department of Mathematics, Vanderbilt University, Nashville, TN 37240, and **Jan Prüss** and **Rico Zacher**. *On a thermodynamically consistent Stefan problem with surface tension.*

The model considered is derived from fundamental principles in physics and thermodynamics. Existence of solutions and stability properties of equilibria will be investigated. It will be pointed out that all equilibria are located at the critical points of an entropy functional, and it will be shown that multiple-equilibria comprise unstable configurations. (Received February 01, 2015)