Numerical studies of a volatile binary fluid subject to a horizontal temperature gradient[1] ROMAN GRIGORIEV, TONGRAN QIN, Georgia Institute of Technology — Convection in a volatile binary fluid with a free surface is an extremely rich, and still a relatively poorly understood, problem. The richness comes from the interplay of three different forces: buoyancy, thermocapillarity, and solutocapillarity. While solutocapillarity is typically associated with the Soret effect, in the presence of phase change this force arises primarily as a result of differential evaporation (or condensation) of the two components of the binary mixture. In this talk we will discuss some interesting manifestations of solutocapillarity, such as the instability leading to the emergence of traveling waves analogous to hydrothermal waves is systems driven by thermocapillarity. Comparison of numerical results with experiments will also be provided.

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