Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Thermocapillary migration of a droplet along a free surface[1] ROMAN GRIGORIEV, Georgia Institute of Technology — The proximity of a free surface can have a significant impact on the thermocapillary migration of droplets (or bubbles) submerged in a layer of fluid. For instance, since the thermocapillary effect produces forces on both the surface of the droplet and the surface of the fluid layer, the droplet can be forced to migrate in, or opposite to, the direction of the temperature gradient. To quantify the migration velocity we use the method of reflections to construct an explicit Lamb's series solution for the velocity field inside and outside the droplet in the presence of a uniform as well as a nonuniform temperature gradient.

[1]Supported by NSF and ACS/PRF

Roman Grigoriev
Georgia Institute of Technology

Date submitted: 04 Aug 2006 Electronic form version 1.4