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David S Shoup* (dshoup@gwmail.gwu.edu), Dept of Mathematics, Monroe Hall, 2115 G St NW, Washington, DC 20052. *Boundary droplet formation in a binary inhibitory system*. Preliminary report.

The free energy of a binary system includes an interface energy that favors micro-domain growth and a longer ranging, inhibitory interaction energy that prevents unlimited spreading. In a planar domain, if the two energies are properly balanced, the free energy admits a local minimizer that on the boundary of the domain will take the form of a partial disc. By perturbing these discs, one defines a restricted class of boundary droplets that can be described by internal variables. A local minimizer of each restricted class is found as a fixed point of a nonlinear equation by a contraction mapping argument. After performing another minimization among the local minimizers from all restricted classes, a minimum of minimizers emerges for the system. (Received September 14, 2014)