The structure of the transition boundary for shear flows NORMAN LEBOVITZ, University of Chicago — The shape and properties of the basin of attraction of the stable laminar point is investigated for finite-dimensional models of shear flows. In some of these models, the basin boundary is the stable manifold of an equilibrium point Xlb, the lower-branch point. As parameters change, the boundary undergoes a topological change at which a periodic orbit P emerges via a homoclinic bifurcation, and thereafter the major part of the basin boundary coincides with the stable manifold of P. The stable manifold of Xlb is then detectable only as an "edge," i.e., the boundary between sets having different relaminarization properties. Implications for the nature of the edge are discussed.

Norman Lebovitz
University of Chicago