Gino Biondini* (biondini@buffalo.edu), State University of New York at Buffalo, Department of Mathematics, Buffalo, NY 14260. Universal behavior of modulationally unstable media.

I will begin by showing how modulational instability (MI) manifests itself within the inverse scattering transform for the focusing nonlinear Schrodinger (NLS) equation. Then I will characterize the nonlinear stage of MI by computing the long-time asymptotics of solutions of the focusing NLS with initial conditions that are a small perturbation of a constant background. For long times, the xt-plane divides into three regions: a left far field and a right far field, in which the solution equals the boundary condition to leading order, and a central region in which the asymptotic behavior is described by a slowly modulated elliptic solution. Finally, I will show that this kind of asymptotic behavior is not limited to the NLS equation, but is shared among a rather large class of models (including several PDEs, nonlocal systems and differential-difference equations) possessing modulational instability (Received August 10, 2016)