1016-76-161 **Roman Shvydkoy*** (shvydkoy@math.uic.edu). *Weakly nonlinear geometric optics for the incompressible Euler equations.* Preliminary report.

The method of geometric optics for linearized incompressible Euler equation has been applied to study localized shortwave instabilities of ideal fluids. In this talk we show how to use the same method in the nonlinear context. We describe the eikonal and the hierarchy of transport amplitude equations, and we justify the asymptotic solution for times growing exponentially. (Received February 10, 2006)