1147-35-239 **Gino Biondini**, **Sitai Li** and **Dionyssios Mantzavinos*** (mantzavinos@ku.edu), 1460 Jayhawk Blvd, Lawrence, KS 66045. *Long-time asymptotics for the focusing nonlinear Schrödinger equation: non-vanishing initial data with non-trivial discrete spectrum.*

The focusing nonlinear Schrödinger (NLS) equation on the whole line with non-vanishing initial data is analyzed asymptotically in the limit $t \to \infty$ via the inverse scattering transform and the Deift-Zhou method for oscillatory Riemann-Hilbert problems. Previously, this problem had been considered for data such that no discrete spectrum arises in the inverse scattering transform. In that case, it was shown that, depending on the value of the similarity ratio x/t, the leading-order solution is described by either a plane wave or a modulated elliptic wave whose amplitude involves the standard snoidal elliptic solutions of the focusing NLS equation. Here, the assumption of empty discrete spectrum is dropped, allowing one to rigorously study the interaction between solitons and radiation in modulationally unstable media governed by the focusing NLS equation. (Received January 13, 2019)