1090-35-356   **Hailiang Liu*** (`hliu@iastate.edu`), Iowa State University, Carver 434, AMes, IA 50011.
GAUSSIAN BEAM METHODS FOR THE HELMHOLTZ EQUATION.

The Helmholtz equation is widely used to model wave propagation problems in application areas like electro-magnetics, geophysics and acoustics. Numerical simulation of Helmholtz becomes expensive when the frequency of the waves is high. In this talk I shall present the recent construction of the Gaussian beam approximations to solutions of the high frequency Helmholtz equation with a localized source, and show how to estimate the error in these approximations. This is a joint work with J. Ralston, O. Runborg and N. Tanushev (Received March 04, 2013)