1012-35-87   **Hart F. Smith*** (`hart@math.washington.edu`), Department of Mathematics, Box 354350,
Seattle, WA 98195. *Wave packets and wave equations.*

A wave packet is a function that is highly localized in frequency as well as spatially, in such a manner that its shape is preserved under evolution by the wave equation. By decomposing an arbitrary function into a superposition of wave packets, one obtains an elementary description of the evolution operator for the wave equation in general media. These ideas have found applications in the study of wave dispersion in rough media, and are currently being explored for applications to image compression and numerical computation of wave solutions. In this talk we present the basic theory of the wave equation and wave packets, including recent advances in the understanding of dispersive properties of waves. (Received September 09, 2005)