Abstract Submitted
for the NEF08 Meeting of
The American Physical Society

An axiomatic approach to quantum mechanics: the meaning of the wavefunction THOMAS MARCELLA, University of Massachusetts at Lowell — We review what the postulates of quantum mechanics and quantum experiments tell us about the nature of the quantum wavefunction. We take quantum mechanics at face value and we do not speculate about things not addressed in the postulates or not supported by experimental evidence. We do not acknowledge any interpretation, other than the Born probability interpretation. We emphasize that the wavefunction describes the preparation procedure from which it is obtained and that the described experiment requires a performed measurement of a specified observable. The postulates indicate that the wavefunction is a mathematical construct that allows us to calculate probabilities. Further, we find no evidence that the wavefunction is an objective entity that propagates in space-time.

Thomas Marcella
University of Massachusetts at Lowell

Date submitted: 22 Sep 2008 Electronic form version 1.4