

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Quantum Description of Diffraction of Light by a Multiple Slit: The Heuristic Value of the Correspondence Principle DANIEL DOMINGUEZ, LUIS GRAVE-DE-PERALTA, Department of Physics, Texas Tech University — We explore the classical limit of the quantum description of the multiple-slit interference phenomena. We present a detailed and quantitative quantum description of the diffraction patterns obtained in multiple-slit experiments with relatively intense light. This is achieved with no more mathematical complexities than the required by a classical description. We have based our quantum description of interference on seminal ideas first introduced by Dirac and Feynman combined with the application of the Bohr's correspondence principle, i.e., the classical description of the interference phenomena should be in some way a limit case of the quantum theory.

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Date submitted: 23 Sep 2009

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