Chaos and Possible Underpinnings for Quantum Mechanics

Wm. C. McHarris

Department of Chemistry and Department of Physics and Astronomy, Michigan State University, East Lansing, MI 48824, USA

Reprint requests to Prof. W. C. McH.; E-mail: mcharris@cem.msu.edu

Z. Naturforsch. 56a, 208–211 (2001); received February 15, 2001

Presented at the 3rd Workshop on Mysteries, Puzzles and Paradoxes in Quantum Mechanics, Gargnano, Italy, September 17–23, 2000

Deterministic chaos with its nonlinearities can formally reproduce some of the counterintuitive idiosyncrasies of quantum mechanics. In this paper I raise the question as to whether chaos might possibly supply some of the "hidden variables" that have been sought as underpinnings at a deeper level of quantum mechanics.

Key words: Deterministic Chaos; Foundations of Quantum Mechanics; Nonlinear Quantum Mechanics.