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Raffaele Romano* (rromano@iastate.edu), 490 Carver Hall, Ames, IA 50010. *Ontological models for quantum theory: some recent perspectives.*

Ontological models for quantum theory represent the attempt to describe the microscopic world in more classical terms, for instance, by describing the quantum probabilities as lack of knowledge of some unaccessible parameters. The motivation for such an approach is twofold: the better understanding of the fundamental principles underlying the quantum description, and the investigation of the really non-classical features of the quantum world. This is especially relevant in view of the recent development of the quantum theories of information and computation, which suggest that quantum-based protocols could outperform the corresponding classical ones, because of the departure of quantum mechanics from classical ideas. In this talk, we discuss some recent results concerning completeness of the quantum theory, and possible deviations from it. (Received November 30, 2012)