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Order and Chaos in Bohmian Quantum Mechanics

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Bohmian Quantum Mechanics (BQM) is one of the main interpretations of Quantum Mechanics. Its main feature is the prediction of deterministic trajectories for the quantum particles. The equations that guide the evolution of quantum particles are highly nonlinear. Thus for every quantum system we observe, in general, the coexistence of ordered and chaotic trajectories.

The Research Center for Astronomy and Applied Mathematics of the Academy of Athens (RCAAM) has a long tradition in the study of order and chaos in BQM. In the present talk we are going to make a short review of the main results of the group of RCAAM on the general mechanism responsible for the emergence of Bohmian chaos. Then we are going to present the strong implications of order and chaos for fundamental aspects of BQM, both from theoretical and technological standpoint.

References

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