



Chaology in regular dynamics

By Lekeufack Tiokeng Olivier

LAP Lambert Academic Publishing Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 220x150x7 mm. This item is printed on demand - Print on Demand Neuware - Great efforts have been made these last decades to understand phenomena occurring at microscopic scale. At this stage, classical physics alone can not describe the dynamics of a system be it regular or nonlinear complex one. This book deals with the dynamics of classically regular systems under several polynomial and sinusoidal potentials. We both analytically and numerically study the extended semiclassical dynamics through the introduction of quantum fluctuation degrees of freedom in a time dependent variational principle using generalized Gaussian wave function. After a literature review on the topic, the methodology is widely exposed. At last we present the main results of this work on: the cubic-quartic potential with the modulational instability criterion in the case of wave propagation; the triple and multiple well adjustable potential heterostructures; the sinusoidal potential model with the torsional dynamics of butane molecule. The analysis and results presented in this book shall help shed light on these new and exciting mesoscopic investigations, and should be especially useful to researchers in quantum fundamental and experimental physics to prevent unexpected phenomena. 120...



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