



Einladung

zum

Seminar des Instituts für Quantenphysik

Prof. Dr. Denys Bondar
Tulane University, USA

Computational problems of physics that computers cannot solve

Freitag, den 28.06.2019

11:00 Uhr

O26/4309

Abstract: Well formulated problems that nevertheless cannot be solved by any computers are known in computer science as 'uncomputable'. We review a brief history of some of such problems: Turing halting problems, Hilbert's 10th problem, and the Matiyasevich–Robinson–Davis–Putnam theorem. We will give a physical interpretation of these results and discover that a plethora of important problems (e.g., calculating the ground state of a many body systems, designing protocol for reaching a desired quantum state from a specified initial state, decide whether dynamics is chaotic) are all uncomputable. This is, however, should be viewed as a great news, implying that the job of a scientist are not automatable.