Institut für Physik

Theoriekolloquium

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Am **6. April 2017** um **14.15 Uhr** in **W2 1-143** hält

Herr Dr. Sebastian Kapfer (Erlangen-Nürnberg)

einen Vortrag mit dem Titel

Melting in 2D and a Fresh Perspective on Monte Carlo

Recent progress in global-balance Monte Carlo algorithms has allowed to confirm the essentials of the Halperin-Nelson-Young theory (KTHNY) for the 2D Melting problem with short-range interactions. A key challenge in these simulations are large correlation lengths which could be overcome by a new class of `Event-chain' Monte Carlo algorithms In this talk, I will explain, starting from elementary examples, the principles of these Event-chain Monte Carlo algorithms. The new paradigm directly applies to very different systems such as particle assemblies, spin systems, polymer chains, and path integrals.

As an example of the potential benefits of the Event-chain approach, I will show that the new Monte Carlo paradigm can account for long-range forces rigorously, without any truncation effects. The resulting algorithm improves on the scaling of Ewald summation and opens a new perspective on large-scale simulation of charged or polar systems.

In addition, I will present first results on the 2D Melting problem with long-range forces.

Interessierte sind herzlich eingeladen.

gez. Prof. Dr. Alexander Hartmann