

## African-European Early-Career Network for Mathematical Analysis and Related Fields



Meeting 13.03.26 17:00-19:00 CET

### *Program*

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Math Talk | 45 min

#### **Phase transitions in statistical mechanics: The Ising model and extensions.**

By Max Mihailescu, University of Bonn

Abstract: Ferromagnetic materials, such as iron, have the remarkable property of a phase transition. It is a sudden jump of behavior depending on the temperature. At low temperature they can be magnetized, while they lose this property completely above a certain temperature threshold. Mathematically, we model this by considering a very large number of microscopic magnets (called spins) which interact, and consider probabilities that certain arrangements occur. This leads to the famous Ising model, which I will describe in this talk, and I will give you a precise theorem on the phase transition described above. At the end, I will describe some recent work with Ron Peled on a closely related model where the spins are slightly different, which results in a completely different behavior.

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Personal Interest Talk | 15 min

#### **Cameroon: Africa in Miniature and Its Natural Wonders.**

By Maeva Mamba Noussi, University of Bonn