

## EINLADUNG

zum Vortrag  
von

**Prof. Dr. Franco Ferrari**

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### **Polymer knots and links: Some experimental, analytical and numerical results**

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**Dienstag, 25. März 2014, um 17:30 Uhr**

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

*Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals*

#### **Abstract:**

Nowadays, the behaviour of single polymer knots can be checked experimentally and it is possible to create polymer melts containing a very high percentage of polymer rings entangled together. Properties that are too difficult to be studied directly via experiments may be investigated thanks to reliable numerical simulations. That of polymer rings is a multidisciplinary subject living at the crossroad of disciplines like chemistry, physics and mathematics. The understanding of the statistical mechanics of such systems not only requires the application of sophisticated techniques of knot theory and numerical simulations, but also demands the development of original solutions that can be further used in other topics, like for instance in polymer dynamics and numerical analysis. Moreover, the modelling of polymer knots and links presents aspects that go beyond the realm of polymers and become relevant to more general contexts in which the topological properties of quasi one-dimensional objects play an important role. This is for example the case of magnetohydrodynamics and of certain systems of quasiparticles with non-trivial statistics. In this introductory talk some of the recent experimental, analytical and numerical results in the physics of topologically entangled polymer rings and related problems will be presented.