



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

ARNOLD SOMMERFELD
CENTER FOR THEORETICAL PHYSICS



Sommerfeld Theory Colloquium

Prof. John Chalker

University of Oxford

Phase transitions in systems with topological constraints

Many classical, geometrically frustrated antiferromagnets have macroscopically degenerate ground states. For an important class of these systems, the ground states are highly constrained, in the sense that they can be characterised by winding numbers or fluxes, which cannot be altered by local excitations. In addition, the set of degenerate ground states has power-law correlations and is an example of a Coulomb phase, with long-wavelength fluctuations described by a Gaussian solenoidal field. A perturbation applied to the system can lift the degeneracy and induce a phase transition. Because of the power-law correlations (or, equivalently, the solenoidal nature of the degrees of freedom), phase transitions of this kind are unusual.

In this seminar, I aim to give a straightforward introduction to the area and to discuss these phase transitions from several points of view.

Wednesday, 30th January 08, 11:15 h, Room 348 / 349, Theresienstr. 37 / III