Critical Phenomena (T) - physics756

Course	Critical Phenomena (T)
Course No.	physics756

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	ST

Requirements for Participation:

Preparation:

Advanced quantum theory (physics606)

Theoretical condensed matter physics (physics617)

Form of Testing and Examination: Requirements for the examination (written): successful work with the exercises

Length of Course: 1 semester

Aims of the Course: Acquisition of important methods to treat critical phenomena

Contents of the Course:

Mean Field Approximation and its Improvements

Critical Behaviour at Surfaces

Statistics of Polymers

Concept of a Tomonaga-Luttinger Fluid

Random Systems

Phase Transitions, Critical Exponents

Scale Behaviour, Conformal Field Theory

Special Topics of Nanoscopic Physics

Recommended Literature:

J. Cardy, Scaling and Renormalization in Statistical Physics (Cambridge University Press, 1996)

A. O. Gogolin, A. A. Nersesyan, A.N.Tsvelik; Bosonisation and strongly correlated systems (Cambridge University Press, 1998)

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