Probability theory and stochastic processes for physicists (T) - Probability

Degree - M.Sc. in Physics (PO von 2014)

Module	**Elective Advanced Lectures: BCGS Courses**
Module No.	physics70d

Course	**Probability theory and stochastic processes for physicists (T)**
Course No.	Probability

Category	**Type**	**Language**	**Teaching hours**	**CP**	**Semester**
Elective	Lecture	English	3	4	WT

Requirements for Participation:

Preparation: Statistical mechanics on the bachelor level

Form of Testing and Examination: Oral examination or term paper

Length of Course: 1 semester

Aims of the Course: Acquaintance with probabilistic concepts and stochastic methods commonly used in the theory of disordered systems and nonequilibrium phenomena, as well as in interdisciplinary applications of statistical physics.

Contents of the Course:

Limit laws and extremal statistics

Point processes

Markov chains and birth-death processes

Stochastic differential equations and path integrals

Large deviations and rare events

Recommended Literature:

D. Sornette: Critical Phenomena in Natural Sciences (Springer, 2004)

N.G.Van Kampen: Stochastic Processes in Physics and Chemistry (Elsevier, 1992)