

**Modules:**

physics700 **Elective Advanced Lectures**  
 physics730 **Theoretical Physics**

**Course:****Disordered systems (T)**

Course No.:

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	4+2	8	ST

**Requirements:****Preparation:**

Advanced statistical mechanics

**Form of Testing and Examination:**

Oral examination

**Length of Course:**

1 semester

**Aims of the Course:**

Understanding the novel types of behaviour that arise in systems with quenched disorder, as well as the specific mathematical challenges associated with their theoretical description.

**Contents of the Course:**

Disorder average

Replica methods

Percolation

Phase transitions in disordered systems

Localization

Glassy dynamics

**Recommended Literature:**

D. Stauffer and A. Aharony, Introduction to Percolation Theory (Taylor &amp; Francis, London 1994)

K.H. Fischer and J.A. Hertz, Spin Glasses (Cambridge University Press, Cambridge 1991)

K. Binder and W. Kob, Glassy Materials and Disordered Solids (World Scientific, Singapore 2005)

T. Nattermann, lecture notes