6834 **Praktikum in der Arbeitsgruppe: Vorbereitung und Durchführung optischer und atomphysikalischer Experimente, Mitwirkung an Forschungsprojekten der Arbeitsgruppe / Laboratory in the Research Group: Preparation and conduction of optical and atomic physics experiments, Participation at research projects of the group (D/E)**
pr, ganztägig, 2-6 Wochen n. Vereinb., IAP

Dozent(en): M. Weitz u.M.

Erforderliche Vorkenntnisse:
Optik und Atomphysik Grundvorlesungen, Quantenmechanik

Inhalt:
Studenten soll frühzeitig die Möglichkeit geboten werden, an aktuellen Forschungsthemen aus dem Bereich der experimentellen Quantenoptik mitzuarbeiten: Ultrakalte atomare Gase, Bose-Einstein-Kondensation, kollektive photonische Quanteneffekte. Die genaue Themenstellung des Praktikums erfolgt nach Absprache.

Literatur:
wird gestellt

Bemerkungen:
Homepage der Arbeitsgruppe:

http://www.iap.uni-bonn.de/ag_weitz/Bonn_AG_Quantenoptik.html

6938 **Accretion in astrophysics: theory and applications**
Mo 14-16, R. 0.008
Di 10-12, R. 0.008

Instructor(s): P. Podsiadlowski

Prerequisites:
Basic Astrophysics (recommended)

Contents:
This course provides an overview over accretion disk theory: thin disks (the alpha-disk model, disk structure and their appearance, the thermal disk instability, resonances), thick disks (includingradiation-pressure dominated disks), self-gravitating disks and their stability (including the Toomre criterion), relativistic disk accretion, optically thin advection-dominated flows, super-Eddington accretion, the source of disk viscosity (including the magneto-rotational instability), mass loss and jets from accretion disks. The course will emphasize a wide range of applications of accretion-disk theory, such as compact binaries, including black-hole binaries, ultraluminous X-ray sources, active galactic nuclei, proto-stellar systems, gamma-ray bursts.

Literature:
Accretion Power in Astrophysics by J. Frank,
A. King and D. Rainer, Cambridge University Press (3rd edition)
plus selected review papers

Comments:
The course targets advanced undergraduate students and beginning graduate students and introduces them to current research problems. A basic background in astrophysics is recommended. The lectures will be given in four blocks of four hours on Mondays and Tuesdays on the following days:

17/18 Oct
14/15 Nov
5/6 Dec
9/10 Jan

All lectures take place in the Argelander-Institut für Astronomie
in lecture theatre 0.008 and take place from 14.00 - 16.00 on Mondays and
10.00 - 12.00 on Tuesdays.