Level: master

Course title: Plasma sources and plasma diagnostic

Status: obligatory

ECTS: 8

Requirements: Atomic physics, Physics of ionized gasses

Learning objectives

Introduction to the physical basis of different sources of plasma for use in laboratory or industry, and diagnostic methods of the plasmas produced in such ways.

Learning outcomes

Upon completion of the course, students should possess:

- General abilities: getting a general picture of the plasma state of matter.
- Subject specific abilities: understanding the general principles of obtaining and diagnostic laboratory, industrial and astrophysical plasmas; knowledge of techniques and technologies of the laboratory plasma sources.

Syllabus

Theoretical instruction

Production of laboratory plasmas. Plasma Heating methods. Plasma sources: wall stabilized arc, pulsed arc, theta pinch. Z - pinch. Electromagnetically driven T - tube. Laser produced plasma. RF plasma. Experimental techniques in plasma physics. Spectral devices. Techniques of recording of spectral line profiles. Plasma diagnostic methods. Electron temperature determination. Electron density determination.

Practical instruction

Exercises based on the theoretical part. Exercises on plasma sources available in a plasma physics laboratory (wall stabilized arc, T - tube). Seminar.

Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	