

Stellar Atmospheres

Lecturer

Sophie VAN ECK (Coordinator)

Course mnemonic

PHYS-F434

ECTS credits

5 credits

Language(s) of instruction

English

Course period

Second term

Course content

- 1 The atmospheres of stars
- 2 Description of the electromagnetic field
- 3 The transfer equation
- 4 Absorption in the lines
- 5 Line broadening processes
- 6 Absorption in the continuum
- 7 Local thermodynamical equilibrium (LTE) and non-LTE
- 8 Model atmospheres
- 9 Stellar spectra analysis
- 10 Stellar winds
- 11 Chemical abundances in the Galaxy

Objectives (and/or specific learning outcomes)

This course presents the transfer equation and radiative processes of astrophysical interest. It provides the physical concepts necessary to the understanding of model atmospheres and abundance determinations. Stellar abundances are then put in the context of Galactic chemical evolution, and abundances of stellar populations of neighbouring galaxies.

Teaching method and learning activities

Oral lectures illustrated by numerous practical examples and illustrations. Support: blackboard.

References, bibliography and recommended reading

- > Stellar Atmosphere, D. Mihalas, Publisher: W H Freeman & Co (Sd); 2 edition ;
- > Radiative Transfer in Stellar Atmospheres, R. Rutten, <http://esoads.eso.org/abs/2003rtsa.book.....R> ;
- > Spectrophysics: principles and applications, Anne P. Thorne, Ulf Litzén, Sveneric Johansson, Springer

Other information

Contact(s)

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Evaluation method(s)

Other

Evaluation method(s) (additional information)

Oral examination with all documents available

Determination of the mark (including the weighting of partial marks)

Course compréhension: 2/3

Personal work: 1/3

Programmes

Programmes proposing this course at the faculty of Sciences

MA-PHYS | **Master in Physics** | finalité Research/unit 1 and finalité Teaching/unit 1