Course: Nuclear Astrophysics

Lecturers: A. Zilges
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Requirements for participation:
Basic Knowledge in Nuclear Physics

Type of module examinations:
One oral examination at the end of the module

Duration of the course:
1 semester

Aims of the course:
Introduction into basic aspects of experimental and theoretical Nuclear Astrophysics.

Contents of the course:
- Life and death of a star
- Abundance of the elements and isotopes
- Reaction rates on earth and in stars
- Nuclear hydrogen burning: pp chains and CNO cycle
- Nucleosynthesis up to A~60
- Synthesis of heavy nuclei: s-, r-, and p-process
- Other processes of stellar nucleosynthesis
- Laboratory experiments

Recommended literature:
C. Iliadis: “Nuclear Physics of stars”
C.E.Rolfs and W.S. Rodney: “Cauldrons in the Cosmos”
D. Arnett: “Supernovae and Nucleosynthesis”