



Theoretical Nuclear Physics, Master Level WiSe 2020/21

Instructors: Prof. Sonia Bacca (s.bacca@uni-mainz.de)
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The aim of this course is to provide students with a survey of nuclear theory at the graduate level, as well as an introduction to modern nuclear theories and topics. While the focus is on theoretical aspects of nuclear physics, when possible, the subject will be linked to applications, e.g. to astrophysics.

Syllabus:

- Introduction to nuclei and nuclear forces
- Theory for alpha, beta and gamma decays
- Types of nuclear spectra and EM transitions
- Few-body methods for nuclei
- Many-body methods for nuclei
- Nuclear reactions
- Nuclear astrophysics and formation of the elements

The course will be held in English. References are also in English. Questions are welcome also in German. The homework problems will be designed to improve your understanding and to explore the topics covered in the lecture.

3V+1U

Tuesdays - 8:15am to 9:45am

Thursdays - 8:15pm to 9:45pm

Teaching method: Hybrid - online or in person in Seminarraum K (01 525)

For questions please contact the instructors.