

Heavy Ion Physics

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Heavy Ion Physics

when, what?

- 🌐 Lectures + tutorials:

- 🌐 lectures (N.B.): Tuesday 8:30 – 10:00 a.m.

until further notice, e-teaching with slides:

interrupt, ask questions!

- 🌐 tutorials (Marc Borrell): Friday 9:00 – 10:00 a.m.

exercise sheets posted a few days in advance

participate, propose your solution, discuss!

- 🌐 oral exam (if needed, at the end of the semester)

👉 altogether 3 + 1 + 1 credit points

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when, what?

Some general literature:

- Chaudhuri: A short course on relativistic heavy ion collisions
- Csernai: Introduction to relativistic heavy ion collisions
- Florkowski: Phenomenology of ultra-relativistic heavy-ion collisions
- Sarkar, Satz & Sinha (eds): The physics of the quark-gluon plasma
- Wong: Introduction to high-energy heavy-ion collisions

(more will be given during the semester)

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obvious common topic!

The ultimate goal(?) of these collisions of (more or less) heavy nuclei at very high energies

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what?

Purpose of the lectures:

Show on a number of examples* how one can gain information on the system created⁺ in high-energy collisions of (large) atomic nuclei:

- theoretical ideas and models
- phenomenological descriptions and pictures*
- experimental details do (sometimes) matter!
- a few open questions

* in these lectures, mostly “soft”⁺ (\neq “hard”!), “collective” observables describing the bulk features of the system

⁺ ... will be explained / defined soon!

[×] not to mention handwaving arguments and educated guesses...

Heavy Ion Physics what?

Prerequisite for the lectures (and tutorials):

- Curiosity!
- Some academic knowledge:
 - Special Relativity
 - Quantum Mechanics (rather little)
 - Thermodynamics & Statistical Physics
 - Particle Physics (very little)
 - NO: Nuclear Physics(!!), Quantum Field Theory...
- Computer skills? (if you wish for more elaborate tutorials)