0. General things
Astroparticle lecture course, Spring 2013, General

- 6 credit units, suitable for advanced studies and Ph.D. studies
- Lectures 24 h (= 8 × 3h) on Tuesdays at 14 – 17
  - the first lecture 19.03. (today) and the last 21.05.
- Lecturer: Timo Enqvist (timo.enqvist@oulu.fi)
- Exercises 16 h (= 8 × 2h), date & time to be fixed
  - by Juho Sarkamo and Johannes Hissa
- Examination method consists of three (equal) parts
  - examination (date?)
  - literature work (essay of 4–5 pages, dead line: September ?)
  - participation on exercises
- Lecture notes available before each lecture at
  https://wiki.oulu.fi/display/763655S/Etusivu
  - Exercises (and later on their solutions) at the same address
0. General things

Astroparticle physics: topics and tentative schedule – 1

▶ Lecture 1, March 19
  ▶ general things
  ▶ introduction on astroparticle physics
  ▶ short introduction on particle physics (relevant for the course)

▶ Lecture 2, March 26
  ▶ cosmic rays I

▶ Lecture 3, April 9
  ▶ cosmic rays II
  ▶ EMMA

▶ Lecture 4, April 16
  ▶ past, current and future experiments
  ▶ APP detectors, experimental methods
  ▶ neutrino beams, LAGUNA
0. General things

Astroparticle physics: topics and tentative schedule – 2

- Lecture 5, April 23
  - stars (APP point of view)
  - solar neutrinos
- Lecture 6, May 7
  - supernovae (APP point of view)
  - sn neutrinos, diffuse sn neutrinos
- Lecture 7, May 14
  - geoneutrinos and reactor neutrinos
  - proton decay
  - dark matter
- Lecture 8, May 21
  - background in underground experiments
0. General things

Astroparticle physics

- Claus Grupen: *Astroparticle Physics*, Springer, 2005
- Donald Perkins: *Particle Astrophysics*, Oxford University Press, 2003
- Kai Zuber: *Neutrino Physics*, IOP Publishing Ltd, 2004