TITLE

Experimental Searches for Dark Matter

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Teaching staff

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Reception hours: Thursday 9:30 – 12:30 (better to send an e-mail in advance)

Program of the course:

• Observational evidence for Dark Matter (DM)
• Thermal production
• Properties of the expected DM signals in Direct Detection experiments
• Background sources and possible strategies for its reduction
• Experimental techniques: detection of light, charge, and heat
• Dual-phase liquid noble gas detectors, cryogenic Ge, bolometers, TES, SQUIDS, CCD, CaWO4 crystals and others.
• Introduction to statistical methods for data analysis
• DM searches at accelerators
• Introduction to the Dark Photon and Light Dark Matter
• Experimental techniques for the Dark Photon “visible decay” Search
• Search for invisible decays: missing mass, missing energy, and missing momentum experiments
• Beam-dump experiments

Bibliography:
Scientific paper and slides provided by the teacher