Advanced Topics in Particle and Astroparticle Physics (T) - physics7509

Course	**Advanced Topics in Particle and Astroparticle Physics (T)**
Course No.	physics7509

Category	**Type**	**Language**	**Teaching hours**	**CP**	**Semester**
Elective	Lecture with exercises	English	3+2	7	WT/ST

Requirements for Participation:

Preparation: physics615 and physics711 strongly recommended, a course on General Relativity (e.g. physics754) would also be helpful.

Form of Testing and Examination: Biweekly Homework Sheets + Final Written Exam

Length of Course: 1 semester

Aims of the Course: To gain knowledge in Cosmological Perturbations, Axion physics, Dark Messenger physics/dark photons.

Contents of the Course:

1. Cosmological perturbations and effect on the CMB
2. Axions: Theory and Detection
3. Dark Photons: Theory and Detection

Recommended Literature:

1. Introduction to the Theory of the Early Universe, Vol. II (Cosmological perturbations and Inflationary Theory) by Gorbunov and Rubakov [World Scientic]on, Modern Cosmoless (Elsevier) 2
2. Modern Cosmology, Scott Dodelson (1st edition, 2003)
3. Various reviews on axions and dark photons.

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