

<b>Module:</b>	<b>Elective Advanced Lectures: Theoretical Physics</b>
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<b>Module No.:</b> physics70c
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<b>Course:</b>	 universität <b>bonn</b> i	<b>Advanced Topics in Particle and Astroparticle Physics (T)</b>
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<b>Course No.:</b> physics7509
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Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT/ST

<b>Requirements for Participation:</b>
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<b>Preparation:</b>
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physics615 and physics711 strongly recommended, a course on General Relativity (e.g. physics754) would also be helpful.
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<b>Form of Testing and Examination:</b>
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Biweekly Homework Sheets + Final Written Exam
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<b>Length of Course:</b>
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1 semester
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**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 Scientific]on, Modern Cosmoless (Elsevier) 2
- 2) Modern Cosmology, Scott Dodelson (1st edition, 2003)
- 3) Various reviews on axions and dark photons.