

**Modules:**

physics700 **Elective Advanced Lectures**  
 physics710 **Experimental Physics**

**Course:****Physics with Antiprotons (E)**

**Course No.:** physics720

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture	English	2	3	WT

**Requirements:****Preparation:**

Completed B.Sc. in Physics, with experience in quantum mechanics, atomic- and nuclear physics

**Form of Testing and Examination:**

Written or oral examination

**Length of Course:**

1 semester

**Aims of the Course:**

Insight in current research topics with antiprotons, understanding experimental methods in particle and nuclear physics, understanding interrelations between different fields of physics such as hadron physics, (astro-)particle physics, atomic physics

**Contents of the Course:**

Matter-antimatter asymmetry, test of the standard model, anti-hydrogen, anti-protonic atoms, antiproton beams, key issues in hadron physics with antiprotons, planned research facilities (FAIR) and experiments (PANDA)

**Recommended Literature:**

B. Povh, K. Rith, C. Scholz, F. Zetsche; Teilchen und Kerne (Springer, Heidelberg 8. Aufl. 2009)  
 D.H. Perkins; Introduction to High Energy Physics (Cambridge University Press 4. Aufl. 2000)  
 further literature will be given in the lecture