



Polish Academy of Sciences

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Galactic dynamics

A monograph lecture course in the fall term of 2014/2015

The formation and evolution of galaxies is a rapidly developing area of modern astrophysics. The purpose of this course is to describe the properties of galaxies within a consistent theoretical framework. I will discuss the structure of different components of galaxies, observational evidence for dark matter, orbits of stars in different potentials, the structural features such as bars and spiral arms and their underlying dynamics. The description of galaxies in terms of distribution functions and modelling via solutions of the Jeans equations will also be introduced. Examples of evolutionary models for Local Group galaxies will be presented. I will also discuss interactions of galaxies, focusing on tidal effects and mergers. The lecture will end with a presentation of galaxy formation models in cosmological context and a discussion of problems the theory encounters on small scales.

The first lecture will be given on October 7th (Tuesday) at 11:15 in the small seminar room at the Nicolaus Copernicus Astronomical Center, Bartycka 18, Warsaw.