

Study programmes: PhD studies - Astronomy and Astrophysics				
Course name: Origin and evolution of planetary systems				
Lecturers: Bojan Novaković				
Status: Optional				
ECTS: 9				
Attendance prerequisites: None				
Course aims: Acquisition of advanced and specific knowledge of theory formation and evolution of planetary systems				
Course outcome: Upon completion of the course, student has advanced knowledge of the origin and evolution of planetary systems. First of all he/she has knowledge about the basic mechanisms and stages that characterize the formation of systems of planets, as well as knowledge about the evolution of such systems. Also, student is thoroughly acquainted with the process of the formation and evolution of our solar system. Upon completion of the course he/she is capable of independent research in the areas listed above.				
Course content:				
1. Proto-planetary disks: the context of star formation, the structure of disks, passive disks, active accretion disks, the process of condensation				
2. Formation of the planets: formation of planetesimals, formation of planetary embryos, formation of gas giants, formation of Earth-like planets				
3. The evolution of planetary systems: migration of the gas disk, migration of planetesimals, interactions between the planets, the evolution of the planets due to the tidal forces				
4. The origin of the solar system: formation of inner planets, formation of Jovian planets, "Grand Tack" scenario, origin of the Earth's water				
Literature:				
1. Philip J. Armitage: 2013, Astrophysics of Planet Formation, Cambridge University Press				
2. John Chambers and Jacqueline Mitton: 2013, From Dust to Life: The Origin and Evolution of Our Solar System, Princeton University Press				
3. Morbidelli, A., Lunine, J.I., O'Brien, D.P., Raymond, S.N., and Walsh, K.J.: 2012, Building Terrestrial Planets, Annual Review of Earth and Planetary Sciences, vol. 40, pp. 251-275				
Number of hours: 10		Lectures: 4	Tutorials: 6	
Methods of teaching: Frontal, Group, <i>Individual Research</i> Approach				
Assessment (maximal 100 points)				
Course assignments		points	Final exam	points
Lectures		-	Written exam	-
Exercises / Tutorials		-	Oral exam	40
Colloquia		10	Written-oral exam	-
Essay / Project		50		