

DOCTORAL STUDIES COURSE UNIT DESCRIPTION

Name of subject	Scientific Field	Faculty / Center	Institute / Department
Galactic Astronomy (10 ECTS credits)	Physics N 002	Faculty of Physics	Institute of Theoretical Physics and Astronomy
		Center for Physical Sciences and Technology	Department of Fundamental Research
Student's workload	Hours	Student's workload	Hours
Lectures		Consultations	45
Individual study	200	Seminars	5

Course annotation			
Galactic stellar populations. Galactic disc, stellar associations, and open star clusters. Galactic halo and bulge. The globular cluster system. Dynamical evolution of stellar systems. Mass distribution in the Galaxy. Dark matter in the Galaxy. Theories of Galaxy formation and evolution. Chemical evolution of the Galaxy. Interstellar medium and magnetic fields of the Galaxy. Spontaneous and induced star formation. Initial mass functions of stars and star clusters.			
List of literature			
<ol style="list-style-type: none"> 1. Gilmore G. ed. Planets, Stars and Stellar Systems. Volume 5: Galactic Structure and Stellar Populations. Springer. 2013. 1130 p. 2. Bland-Hawthorn J., Freeman K., & Matteucci F. The Origin of the Galaxy and Local Group. Saas-Fee Advanced Course 37, Springer, 2014. 231 p. 3. Sofue Y. Galactic Radio Astronomy. Springer. 2017. 229 p. 4. Binney J., Tremaine S. Galactic Dynamics. Princeton University Press. 2008. 904 p. 			
Consulting teachers	Scientific degree	Pedagogical name	Main scientific works published in a scientific field in last 5 year period
Vladas Vansevičius	PhD (HP)	Prof.	<ol style="list-style-type: none"> 1. de Meulenaer, P., Stonkutė, R., & Vansevičius, V. 2017, "Deriving physical parameters of unresolved star clusters. V. M31 PHAT star clusters" // Astronomy & Astrophysics, 602, A112 2. Stonkutė, R., Čeponis, M., Leščinskaitė, A., Naujalis, R., & Vansevičius, V. 2018, "Dwarf irregular galaxy Leo A extends even farther, according to HST WFC3 photometry" // Astronomy & Astrophysics, 614, A144 3. Bialopetravičius, J., Narbutis, D., & Vansevičius, V. 2019, "Deriving star cluster parameters with convolutional neural networks. I. Age, mass, and size" // Astronomy & Astrophysics, 621, A103 4. Stonkutė, R., Naujalis, R., Čeponis, M., Leščinskaitė, A., & Vansevičius, V. 2019, "Star

			clusters in the dwarf irregular galaxy Leo A” // Astronomy & Astrophysics, 627, A7 Leščinskaitė, A., Stonkutė, R., & Vansevičius, V. 2021, “AGB and RGB stars in the dwarf irregular galaxy Leo A” // Astronomy & Astrophysics, accepted
Kastytis Zubovas	PhD		1. K. Zubovas. Tidal disruption events can power the observed AGN in dwarf galaxies. 2019, Monthly Notices of the Royal Astronomical Society, 483, 1957-1969 2. S. Nayakshin, K. Zubovas. Sgr A* envelope explosion and the young stars in the centre of the Milky Way. 2018, Monthly Notices of the Royal Astronomical Society, 478, L127-L131 3. K. Zubovas. Massive outflow properties suggest AGN fade slowly. 2018, Monthly Notices of the Royal Astronomical Society, 473, 3525-3535 4. K. Zubovas, M. A. Bourne. Do AGN outflows quench or enhance star formation? 2017, Monthly Notices of the Royal Astronomical Society, 468, 4956-4967 5. K. Zubovas, A. King. The small observed scale of AGN-driven outflows, and inside-out disc quenching. 2016, Monthly Notices of the Royal Astronomical Society, 462, 4055-4066
Certified during Doctoral Committee session 02/02/2022, protocol No. (7.17 E) 15600-KT-32			
Committee Chairman prof. S. Juršėnas			