

DOCTORAL STUDIES COURSE UNIT DESCRIPTION

Name of subject	Scientific Field	Faculty / Center	Institute / Department
Physics of Galaxies (8 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	35
Individual study	160	Seminars	5

Course annotation			
The physical meaning of galaxy morphology. Galaxy dynamics. Star clusters and star formation in galaxies. Interstellar medium in galaxies. Chemical evolution of galaxies. Clusters of galaxies. The Local Group of galaxies. Active galaxies. Intergalactic medium. Dark matter in the Universe. Modern theories of galaxy evolution.			
List of literature			
<ol style="list-style-type: none"> 1. Keel W. C. ed. Planets, Stars and Stellar Systems. Volume 6: Extragalactic Astronomy and Cosmology. Springer. 2013. 690 pp. 2. Ferreras I. Fundamentals of Galaxy Dynamics, Formation and Evolution. UCL Press. 1st edition. 2019. 200 pp. 3. Bertin G. Dynamics of Galaxies. Cambridge University Press. 2nd edition, 2014. 484 pp. 4. Matteucci F. Chemical Evolution of Galaxies. Springer. 2nd edition, 2012. 240 pp. 			
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" // <i>Astronomy & Astrophysics</i>, 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" // <i>Astronomy & Astrophysics</i>, 614, A144 3. Bialopetravičius, J., Narbutis, D., & Vansevičius, V. 2019, "Deriving star cluster parameters with convolutional neural networks. I. Age, mass, and size" // <i>Astronomy & Astrophysics</i>, 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			