

Modern radioastronomy - course description

General information	
Course name	Modern radioastronomy
Course ID	13.7-WF-FizP-MR- 19
Faculty	Faculty of Physics and Astronomy
Field of study	Physics
Education profile	academic
Level of studies	Second-cycle studies leading to MS degree
Beginning semester	winter term 2021/2022

Course information	
Semester	3
ECTS credits to win	2
Available in specialities	Astrofizyka komputerowa
Course type	obligatory
Teaching language	polish
Author of syllabus	<ul style="list-style-type: none">dr hab. Jarosław Kijak, prof. UZ

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Credit with grade

Aim of the course

Gaining knowledge about modern radio astronomy. Overview modern research instruments and techniques of observation. Presentation of the current knowledge about the radio sources in the universe. Overview of key research projects XXI century astronomy.

Prerequisites

Completion of the course: Astrophysics.

Scope

Modern techniques of observations in radio astronomy. Construction and operation of modern telescopes. Interferometry. Radio sources in the Universe. Projects: ALMA, FAST, LOFAR, SKA.

Teaching methods

Lecture

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student can describe the projects: ALMA, FAST, LOFAR and SKA.	<ul style="list-style-type: none">K2_W06K2_K01K2_K05	<ul style="list-style-type: none">a discussiona test	<ul style="list-style-type: none">Lecture
Student can discuss the basic properties of radio sources.	<ul style="list-style-type: none">K2_W06K2_K01	<ul style="list-style-type: none">a test	<ul style="list-style-type: none">Lecture
The student is able to define and explain the fundamental problems of radio astronomy.	<ul style="list-style-type: none">K2_W02	<ul style="list-style-type: none">a discussiona test	<ul style="list-style-type: none">Lecture
Student can discuss the modern tools and techniques of observation in radio astronomy.	<ul style="list-style-type: none">K2_W04K2_W06	<ul style="list-style-type: none">a discussiona test	<ul style="list-style-type: none">Lecture

Assignment conditions

Final grade: Written test. Positive passing of final test (80%) and discussion (20%).

Recommended reading

[1] *Astronomia popularna*, praca zbiorowa, PWN, Warszawa 1990.

[2] F. H. Shu, *Fizyka Wszechświata*, Prószyński i S-ka, Warszawa 2003.

[3] J. D. Kraus, 1986, *Radio Astronomy*, 2nd edition, Cygnus-Quasar Books, Powell, OH.

[4] T. L. Wilson, K. Rohlfs, S. Huttemeister, *Tools of Radio Astronomy*, Fifth Edition, Springer-Verlag, Berlin 2009.

[5] B. F. Burke and F. Graham-Smith, *An Introduction to Radio Astronomy*, Third Edition, Cambridge University Press, 2010.

Further reading

[1] D. Lorimer and M. Kramer, *Handbook of Pulsar Astronomy*, Cambridge University Press, Cambridge, 2005.

[2] Single-dish radio astronomy techniques and applications: proceedings of the NAIC-NRAO Summer School held at National Astronomy and Ionosphere Center, Arecibo Observatory, Arecibo, Puerto Rico, USA, 10-15 June 2001.

[3] A. R. Thompson, J. M. Moran, G.W. Swenson Jr., *Interferometry and Synthesis in Radio Astronomy*, Second Edition; WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim, 2004.

Notes

Modified by dr Marcin Kośmider (last modification: 09-05-2021 21:41)

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