

International PhD studies at IFPAN (MSD)				
Warsaw-4-PhD Physics specialisation				
Table of lectures and ECTS points in past years (and some in the current year)				
Black: Lectures etc at IFPAN, CFT PAN, IWC PAN				
Green: professional skills courses				
Blue: Journal clubs, PhD seminars				
Orange: Lectures etc elsewhere				
Additional note for MSD students only: ECTS points can also be obtained for participation in topical scientific seminars (1ECTS/semester for department seminars at IFPAN/IWC/CFT) and passing language courses at IFPAN (1ECTS/semester)				
2017/2018 Academic Year				
<i>Semester I</i>				
Title	Lecturers / Organisers	ECTS	Location	
Quantum computing I	Łukasz Cywiński	2	IFPAN	
Contemporary physics I	Jan Mostowski	2	IFPAN	
Solid state physics I	Marek Godlewski	2	IFPAN	
Quantum mechanics II	Jan Mostowski	2	IFPAN	
Computational methods in materials science and biology	Paweł Krupa, Silvio Osella, Adolfo Poma, Panagiotis Theodorakis	2	IFPAN	
Physics of the atom and molecules	Jarosław Shopa	2	IFPAN	
The art of scientific presentations	Piotr Wasylczyk	1	IFPAN	23.10.2017
Journal club	Tomasz Sowiński	1	IFPAN	
PhD seminar on fundamental physics	Aleksander Wittlin, Łukasz Turski (CFT), Marek Kuś (CFT), Mariusz Gajda	1	IFPAN	
Symposium "Growth Processes"	Marek Cieplak	0,5	IFPAN	
Cosmology	Bohdan Grządkowski	6	Fizyka UW	
Active galactic nuclei	Marek Sikora	4	CAMK-PAN	
Structure of matter	Robert Nowakowski, Zbigniew Kaszukur	3	ICHF PAN	
Electrodynamics	Marek Trippenbach	7	Fizyka UW	
Mathematical introduction to quantum field theory	Jan Dereziński	6	Fizyka UW	
<i>Semester II</i>				
Title	Lecturers / Organisers	ECTS	Location	
Quantum computing II	Łukasz Cywiński	2	IFPAN	
Contemporary physics II	Jan Mostowski	2	IFPAN	
Solid state physics II	Marek Godlewski	2	IFPAN	
Electrodynamics in action	Łukasz Turski	1	IFPAN	
Introduction to the physics of topological materials	Tomasz Story	1	IFPAN	
Workshop/symposium on patenting	Marek Godlewski, Agnieszka Krochmal-Węgrzyn, Bartłomiej Witkowski	1	IFPAN	14.05.2018
Journal club	Tomasz Sowiński	1	IFPAN	
PhD seminar on fundamental physics	Aleksander Wittlin, Łukasz Turski (CFT), Marek Kuś (CFT), Mariusz Gajda	1	IFPAN	
Symposium "Noise in Physics"	Marek Cieplak	0,5	IFPAN	
X PhD away symposium	Student council	1	Białobrzegi	
Scientific computing	Leszek Marcinkowski	6	MIM, UW	
Termodynamika	Andrzej Poniewierski, Marcin Fijałkowski	2	ICHF PAN	
Magnetic properties of matter	Andrzej Twardowski	3	Fizyka UW	
History of physical sciences	Andrzej Kajetan Wróblewski	5	Fizyka UW	
General relativity II	Jerzy Lewandowski	6	Fizyka UW	
Quantum materials in condensed matter physics summer school	University of Copenhagen	2,5	U Copenhagen	
Compact stars	Agnieszka Janiuk	2	Politechnika Warsz.	
Mathematical introduction to quantum field theory II	Jan Dereziński	3	Fizyka UW	
QDEV summer school	QDEV Copenhagen	2	QDEV Copenhagen	19-24.8.2018
<i>Subjects from the 2016/2017 Academic Year, that were agreed to be included for PhD students starting in 2017</i>				
Title	Lecturers / Organisers	ECTS	Location	Semester
Introduction to magnetism and superconductivity	Konrad Kapcia / Anna Ciechan	2	IFPAN	Sem II
Quantum mechanics I	Jan Mostowski	2	IFPAN	Sem II
Many body quantum theory	Łukasz Cywiński / Piotr Szańkowski	2	IFPAN	Sem II
Quantum information theory	Łukasz Cywiński	2	IFPAN	Sem II 2015/6
Experimental methods in physics I	Grzegorz Grabecki	2	UKSW	Sem I
Experimental methods in physics II	Grzegorz Grabecki	2	UKSW	Sem II

2018/2019 Academic Year				
<i>Semester I</i>				
Title	Lecturers / Organisers	ECTS	Location	
Solid state physics I	Marek Godlewski	2	IFPAN	
Introduction to contemporary physics I	Jan Mostowski	2	IFPAN	
Quantum mechanics	Jan Mostowski	2	IFPAN	
Quantum optics	Emilia Witkowska, Krzysztof Pawłowski (CFT)	2	IFPAN	
Condensed matter theory	Marcin Wysokiński	2	IFPAN	
Topological insulators	Michał Matuszewski	1	IFPAN	
Journal club	Grzegorz Grabecki	1	IFPAN	
PhD seminar on fundamental physics	Aleksander Wittlin, Łukasz Turski (CFT), Marek Kuś (CFT), Mariusz Gajda	1	IFPAN	
Symposium "Molecular Water"	Marek Cieplak	0,5	IFPAN	
Symmetries, geometric structures and holonomy	Katja Sagerschnig	6	Fizyka UW	
Experimental Methods in Physics	Agata Kamińska	6	UKSW	
Structure and lattice dynamics of condensed matter	Radosław Przeniosło	6	Fizyka UW	
Quantum measurement and estimation theory	Rafał Demkowicz-Dobrzański	3	Fizyka UW	
Neutron stars	Brynnor Haskell	3	CAMK-PAN	
Bioninformatics	Dominik Gront, Andrzej Koliński	2,5	Chemia UW	
Symetrie w półprzewodnikach	Witold Bardyszewski	3	Fizyka UW	
<i>Semester II</i>				
Title	Lecturers / Organisers	ECTS	Location	
Solid state physics II	Marek Godlewski	2	IFPAN	
Introduction to contemporary physics II	Jan Mostowski	2	IFPAN	
Ultracold quantum gases	Mariusz Gajda, Marcin Płodzień	2	IFPAN	
Introduction to molecular biophysics and general biology	Anna Niedźwiecka, Bartosz Różycki, Remigiusz Worch	2	IFPAN	
Magnetism and superconductivity	Andrzej Szewczyk	2	IFPAN	
Computational biophysics and materials science	Paweł Krupa, Panagiotis Theodorakis	2	IFPAN	
Introduction to statistical physics	Łukasz Turski (CFT)	1	IFPAN	
Introduction to academic writing & publishing in physical sciences = "Workshop on scientific writing"	Rafał Szabla	1	IFPAN	27.03.2019
Ochrona własności intelektualnej w działalności naukowej	Piotr Zakrzewski (UPRP); Hosts: Marek Godlewski, Agnieszka Krochmal-Węgrzyn	0,5	IFPAN	18.06.2019
NCN workshop on grant applications	Ewelina Szymańska (NCN)	1	IFPAN	27.05.2019
Journal club	Grzegorz Grabecki	1	IFPAN	
PhD seminar on fundamental physics	Aleksander Wittlin, Łukasz Turski (CFT), Marek Kuś (CFT), Mariusz Gajda	1	IFPAN	
XI PhD away symposium	Student council	1	Serock	
On the use of evolutionary methods in metric theories of gravity	Istvan Racz	3	Fizyka UW	
Modeling of nanostructures and materials	Patryk Zaleski-Ejgierd	4,5	Fizyka UW	
History of physical sciences	Andrzej Kajetan Wróblewski	5	Fizyka UW	
Transport of charge, spin, and heat in nanostructures	Jacek Majewski	3	Fizyka UW	
Group theory II	Jan Dereziński	6	Fizyka UW	
2019/2020 Academic Year				
<i>Semester I</i>				
Title	Lecturers / Organisers	ECTS	Location	
Solid state physics I	Marek Godlewski	3	IFPAN	
Introduction to contemporary physics I	Jan Mostowski	3	IFPAN	
Selected topics of theoretical physics I: classical and quantum electromagnetism	Iwo Białynicki-Birula (CFT)	3	IFPAN	
Molecular biophysics II	Anna Niedźwiecka, Marek Cieplak, Bartosz Różycki, Szymon Kubiszewski-Jakubiak	3	IFPAN	
Foundations: special relativity	Tomasz Sowiński	1,5	IFPAN	

Quantum information theory I	Łukasz Cywiński	3	IFPAN	
Carbon in condensed matter	Bruno Camargo	1	IFPAN	
Theory of molecular-level simulations in materials science, fluid dynamics, and biology	Panagiotis Theodorakis	1	IFPAN	
Material science and computational methods I	Małgorzata Wierzbowska (IWC)	3	IFPAN	
Molecular biophysics I	Anna Niedźwiecka, Bartosz Różycki, Remigiusz Worch	3	IFPAN	
NCN Information day	Katarzyna Rutkowska-Rudy	1	Fizyka UW	18.10.2019
Journal club	Grzegorz Grabecki	1	IFPAN	
PhD seminar on fundamental physics	Aleksander Wittlin, Łukasz Turski (CFT), Marek Kuś (CFT), Piotr Deuar	1	IFPAN	
Physics of biological systems	Piotr Szymczak	3	Fizyka UW	
Relativistic quantum information	Andrzej Dragan	3	Fizyka UW	
Advanced quantum mechanics	Krzysztof Turzyński	6	Fizyka UW	
Molecular modeling	Domink Gront	1,5	Chemia UW	
Molsim 2020 workshop	Universiteit van Amsterdam	3	UvA, Amsterdam	
Nonlinear mathematical models	Stanisław Janeczko	3	Politechnika Warsz.	
Limits of knowledge	Stanisław Janeczko	2	Politechnika Warsz.	
Technology & characterisation of low dimensional systems	Jan Muszański	4	Politechnika Warsz.	
Semester II				
Title	Lecturers / Organisers	ECTS	Location	
Solid state physics II	Marek Godlewski	3	IFPAN / Zoom	
Introduction to contemporary physics II	Jan Mostowski	3	IFPAN / Zoom	
Selected topics of theoretical physics II: Introduction to cosmology	Wojciech Hellwing (CFT), Maciej Bilicki (CFT)	3	IFPAN / Zoom	
Quantum information theory II	Łukasz Cywiński	3	IFPAN / Zoom	
Dirac equation in condensed matter	Bruno Camargo	1,5	IFPAN / Zoom	
Learning Python	Panagiotis Theodorakis	1	IFPAN / Zoom	
Grant application writing	Robert Hołyst (IChF)	1	IChF PAN / Zoom	16-17.4.2020
Intellectual property protection and patenting practice	Łukasz Zieliński	1	IChF PAN / Zoom	11,18.5.2020
Journal club	Grzegorz Grabecki	1	IFPAN / Zoom	
XII PhD away symposium	Student council	1	Zoom	3-4.12.2020
Structure of matter	Robert Nowakowski, Zbigniew Kaszukur	3	IChF PAN	
Modeling of nanostructures and materials	Jacek Majewski	9	Fizyka UW	
Prospective applications of powder X-ray diffraction (PXRD) in (non)routin chemical and physical research	Zbigniew Kaszukur	1,5	IChF PAN	
Determination of thickness and optical parameters of thin solid films using spectral ellipsometry	Krzysztof Noworyta	1,5	IChF PAN	
Single crystal X-ray diffraction	Roman Luboradzki	1,5	IChF PAN	
Statistics for biologists	Maksymilian Bielecki	2	IBD PAN	
Topics in Modern Statistical Physics	Marek Napiórkowski	6	Fizyka UW	
Advanced quantum information: entanglement and nonlocality	Alexander Streltsov, Jędrzej Kaniewski	3	Fizyka UW	
2020/2021 Academic Year				
Semester I				
Title	Lecturers / Organisers	ECTS	Location	
Solid state physics I	Marek Godlewski	3	IFPAN / Online notes	
Introduction to contemporary physics I	Jan Mostowski	3	IFPAN / Zoom	
Selected topics of theoretical physics I: modern developments in quantum computing	Michał Oszmaniec (CFT), Adam Sawicki (CFT)	3	CFT / Zoom	
Condensed matter theory	Marcin Wysokiński	3	IFPAN / Zoom	
Introduction to atomic physics	Emilia Witkowska, Krzysztof Pawłowski (CFT)	3	IFPAN / Zoom	
Mathematical physics I: compact groups and their representations	Adam Sawicki (CFT), Oskar Słowik (CFT)	3	CFT / Zoom	
Soft matter foods under pressure	Aleksandra Drozd-Rzoska (IWC)	1,5	IFPAN / Zoom	
Spectroscopy	Marek Godlewski	1,5	IFPAN	
Journal club	Grzegorz Grabecki	1	IFPAN / Zoom	

