

SYLLABUS

winter and summer semester 2026/2027

Lecturer: dr. hab. Michał Bielejewski, prof. IFM PAN
dr hab. Karol Synoradzki prof. IFM PAN

Lecture title	PhD seminars
Venue	Institute of Molecular Physics Polish Academy of Sciences (IMPPAS)
Language	English
Learning objectives	Knowledge (W): Knows the world scientific heritage in their field and understands its implications for practice (P8U_W). Knows the main developmental trends of scientific disciplines relevant to the programme(P8S_WG). Knows economic, legal, and other significant conditions of research activities (P8S_WK). Skills (U): Defines research goals and subject, formulates research hypotheses(P8S_UW). Develops research methods, techniques, and tools and creatively applies them (P8S_UW). Draws conclusions from research results (P8S_UW). Disseminates research results, including in popular formats (P8S_UK). Participates in scientific discourse (P8S_UK). Plans and implements individual and team research or creative projects (P8S_UO). Inspires and organizes development of other people (P8S_UU). Social competences (K): Independent research expanding existing scientific and creative heritage (P8U_K). Conducting research independently (P8S_KR) Taking on challenges in professional and public spheres (P8S_KR) Initiating actions for public interest (P8S_KO) Maintaining and creating proper relations in international professional environment (P8S_KW)
Type of the course	obligatory
Term/Year	winter and summer semesters 2026/2027
Lecturer's and names	dr. hab. Michał Bielejewski, prof. IFM PAN dr hab. Karol Synoradzki prof. IFM PAN
Attendance requirements	Basic knowledge of general physics and solid-state physics
Number of ECTS points	4 ECTS per academic year / 2 ECTS per semester
Number of lectures	Depending on the number of PhD students. All students will present and discuss theirs ongoing research
Balance of ECTS points	Two (2) ECTS credit corresponds to 10 hours of seminar and 5 hours of individual work.
Didactic methods	Oral presentations by doctoral students (P8S_UO, P8S_UK). Moderated discussions (P8S_KK, P8S_KW). Critical analysis of scientific publications (P8S_UW, P8S_KK). Individual consultations (P8S_UU, P8S_UO). Peer review and feedback on presented materials (P8S_KR, P8S_KK). Seminars were presented using current audio-visual techniques (P8S_UW).
Methods of verification and	Active participation in seminar meetings. Presentation of own research

assessment of learning outcomes	results and literature analysis
Conditions of a positive evaluation	A successful presentation and active attendance in discussion, asking questions and explaining answers
Course content	1. Research Plan: Presentation of doctorate project plan and progress(P8S_UO, P8S_WG) 2. Critical Literature Review Critical analysis of scientific publications in research area (P8S_KK, P8S_UW) 3. Methods and Results: Presentation Methods of presenting and interpreting research results (P8S_UW, P8S_UK) 4. Scientific Publications: Structure, editing, publication ethics, journal selection (P8S_UK, P8S_KR) 5. Methodological Discussion: Discussion of methods and results presented by participants (P8S_KK, P8S_UW) 6. Research Trends: Overview of current trends and emerging topics in the field (P8S_WG, P8S_UW) 7. Conference Presentations: Preparation and delivery of conference/outreach presentations (P8S_UK, P8S_UO)
Literature constituting the course materials	[1] L. Jabłowska, P. Wachowiak, S. Winch, eds., Sztuka prezentacji: teoria i praktyka, Wydanie poprawione, Difin, Warszawa, 2019. [2] P. Wasylczyk, Prezentacje naukowe: praktyczny poradnik dla studentów, doktorantów i nie tylko, Wydanie I, Wydawnictwo Naukowe PWN, Warszawa, 2017. [3] E.D. Zanders, L. MacLeod, Presentation skills for scientists: a practical guide, 2nd ed, Cambridge university press, Cambridge New York, NY, 2018. [4] B. Hey, Mastering Scientific Presentations: Unlocking Your Communication Skills, Springer Fachmedien Wiesbaden, Wiesbaden, 2024. https://doi.org/10.1007/978-3-658-44184-5.