

Physics of Condensed Matter and Wave Processes

I. Annotation

Students completed the doctoral program "Physics of Condensed Matter and Wave Processes" must:

- have a broad range of information in the field of solid state physics and physics of wave processes, analytical methods of investigation of physical environments with the use of electromagnetic waves, and knowledge of the principles of operation and application of modern scientific devices for research in the scientific field;

- be able to use the original scientific papers;
- have a high foreign language culture;
- use computers and technology;
- to master the highest achievements in solid state physics and physics of wave processes their applications in other fields such as materials science, chemistry, engineering science.

- have experimental experience in solving problems of relevance;
- be able to use theoretical knowledge, interdisciplinary and causality in-depth scientific analysis and solving specific theoretical and practical tasks.

II. Training and implementation

With the knowledge and skills acquired by the holder of doctorate educational and scientific degree "doctor" in "Physics of Condensed Matter and Wave Processes" can be realized in Institutions with an appropriate activity as follows:

- as a researcher in research institutes and laboratories conducting basic and applied research in physics condensed matter physics and wave processes;

- as a lecturer at universities and colleges in the respective scientific field and specialty;

- as an associate in applied science and laboratory procedures and companies where the required skills for analytical thinking, innovation, scientific approach in solving complex practical problems and organizational, managerial and marketing activities;

- as an assistant in consultancies and companies trading apparatuses and equipment for laboratories and other relevant. Graduate doctoral program may also participate in various forms of continuing education such as post-doctoral programs enhancing professional qualifications and experience in science specialty and others.

III. Training Courses

1. Phase Change Thermal Batteries – materials, processes and applications.

Lecturer: Prof. Dr. Plamen Svetoslavov Gramatikov, M.Eng., Ph.D, Department of Physics, Faculty of Natural Sciences and Mathematics

2. Nonlinear optics

Lecturer: Assoc. Prof. Luben Mihov Ivanov Ph.D. Department of Physics, Faculty of Natural Sciences and Mathematics

3. Interaction of charged particles with matter.

Lecturer: Assoc. Prof. Ralitsa Stanoeva, Ph.D. Department of Physics, Faculty of Natural Sciences and Mathematics

4. Modern Instrumental Methods

Lecturer: Assoc. Prof. Petko Mandzhukov, Ph.D. Department of Chemistry Faculty of Natural Sciences and Mathematics

5. Vibrational spectroscopy

Lecturer: Assoc. Prof. Atanas Chapkanov, Ph.D. Department of Chemistry Faculty of Natural Sciences and Mathematics

6. Methods for processing experimental data

Lecturer: Assoc. Prof. Stefan Stefanov, Ph.D. Department of Informatics Faculty of Natural Sciences and Mathematics

7. Digital Signal Processing

Lecturer: Assoc. Prof. Stefan Stefanov, Ph.D. Department of Informatics Faculty of Natural Sciences and Mathematics

8. Fundamentals of the mathematical modeling

Lecturer: Assoc. Prof. M. Kolev, Ph.D. Department of Mathematics, Faculty of Natural Sciences and Mathematics