

Basic plan for the doctoral program “Heliophysics” at the Institute of Astronomy and National Astronomical Observatory - Bulgarian Academy of Sciences

1. Overview and goals

Objective: To carry out high-quality research activities, using the observational resources of the IA and NAO (Rozhen NAO, Belogradchik AO), other ground-based observatories and open data from space missions; to publish scientific articles and to defend a dissertation that contributes original results to science. To develop in-depth expertise in heliophysics through training, independent scientific work and scientific communication.

Main expected results:

- Defense of a doctoral dissertation on a selected research topic
- Publications in peer-reviewed journals with impact factor and/or impact rank
- Participation in national and international conferences
- Development of practical skills: working with observational equipment, data analysis, simulations, writing of scientific/technical text, presentation skills and public speaking

2. Plan by Years

Year I

Main goals:

- Building a good theoretical foundation.
- Start of early scientific research work.

Typical activities:

- Taking courses from the BAS Training Center:
- Getting acquainted with the observational technique in NAO-Rozhen and AO-Belogradchik.
- Conducting an in-depth review of the literature on the topic of the dissertation.

Achievements:

- Successful completion of the courses at the BAS Training Center.
- First results of the research work.
- Presentation of the results of the first year to the Institute Seminar.

Year II

Main goals:

- Deepening specialization.

- Starting substantial scientific work.

Activities:

- Elective courses more closely related to the topic of the dissertation.
- Conducting original scientific research.
- Development of computer, analytical or observational skills depending on the topic of the dissertation.
- Participation in trainings on writing scientific articles, programming, projects.

Achievements:

- Passing the candidate minimum exams.
- Participation in conferences with a poster/report with presentation of first results.
- Presentation of the results of the second year to the Institute Seminar.

Year III

Main objectives:

- Publishing the results in scientific journals.
- Finalizing the scientific work and writing a dissertation.

Activities:

- Completing the analysis of data, simulations or observation campaigns.
- Participation in international conferences.
- Writing dissertation chapters and reviewing with the supervisor.
- Review with the scientific supervisor, corrections and revisions.
- Sending final publications.
- Organizing and conducting a public defense before the Institute Seminar.

Achievements:

- Publishing 2–3 scientific articles.
- Publishing at least one scientific article as first author in a refereed journal with impact factor/rank.
- Presenting the scientific results at conferences.
- Successful defense of a doctoral dissertation.

3. Supplement:

Supplement 2.2 of the Statutes of the Central Academic Office of the BAS and additional requirements of IA and NAO - Minimum 200 points as follows:

1. Implementation of the educational program

(Mandatory minimum of 130 points)

- 1.1. Successfully passed exam in a basic specialized subject – 40 points
- 1.2. For a recognized additional course for the implementation of general basic training in the relevant scientific field or in an interdisciplinary direction related to the topic of the dissertation – 20 points with a minimum of 2 courses x 20 points = 40 points;
- 1.3. Successfully passed the exam in language preparation – 25 points;
- 1.4. Successfully passed the exam in computer skills – 25 points.

2. Approval of the implementation of the scientific program

(Mandatory minimum of 40 points)

Reporting to scientific forums of scientific results on the topic of the dissertation:

- 2.1. Report at a scientific seminar of the primary scientific unit (Institute) – 8 points;
- 2.2. Report at a national scientific event – 24 points;
- 2.3. Report at an international scientific event in Bulgaria or abroad – 32 points

3. Publications of scientific results on the topic of the dissertation

(Mandatory minimum of one publication in a journal with an impact factor/rank as first author and simultaneously a mandatory minimum of 30 points according to Group of indicators “D” of the minimum requirements for field 4.1 Physical Sciences in Appendix No. 1 of the “Regulations on the conditions and procedure for acquiring scientific degrees and for occupying academic positions in the Bulgarian Academy of Sciences”)*

3.1 Scientific publication in publications that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus), outside the habilitation thesis:

- 25 points for publication in Q1
- 20 points for publication in Q2
- 15 points for publication in Q3
- 12 points for publication in Q4
- 10 points for publication in a publication with SJR without impact factor (IF)

**Specific additional requirements of IA and NAO for scientific degrees:*

https://astro.bas.bg/Docs/Kriterii_AD_IANAQ.pdf

Required documents for admission to pre-defense and defense of dissertations:

https://astro.bas.bg/DokumentiKonkursi/doks1/konkursi_doks.html

Declaration of authorship of dissertation:

https://astro.bas.bg/konkursi_bg.php