



MOBILITY OF YOUNG SCIENTISTS IN EUROPE

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ABSTRACT

The mobility of students within the European Union is very well known but young researchers and scientists, especially in Bulgaria, need more encouragement and information to make that move. In this article some of the most important programmes elaborated by the European Commission towards young scientists are presented and explained. The main EU governed body, the European Research Council, is introduced as giving several opportunities. Different financing instruments are proposed to fresh PhD degree holders regarding their experience, needs and interests. Finally the 7th Framework Programme is presented in the article along with its Marie Curie Actions and other Programmes and Platforms.

Key words: mobility, European Research Council, Marie Curie Actions, 7th Framework Programme, young scientist, European Union, researchers

1. WHAT IS A "MOBILITY"?

One of the fundamental rights of EU citizens is the right of free movement (Article 8a of the Treaty establishing the EU). It is the power of every Union citizen to travel, reside, study or work in any member country of the EU without the need for compliance with the long and complicated administrative procedures. From 01.01.2007. Bulgarian citizens can benefit from this law.

In its history, man has always strived to get to know people and traditions beyond those of his homeland. Founding fathers of the European Union have provided that this is one way to approximate the peoples of Europe, rather than diverge, make them work together in one direction. And the easiest way is to stimulate these processes through the most typical of a modern society - work and education.

Mobility is an opportunity for young researchers to benefit research, linguistically and culturally from the scientific experience in other European countries.

Thus promote cooperation between research institutions and support for new discoveries of high added value. This in turn contributes to the development of highly qualified professionals who have international experience and an open mind. Scientists can apply and implement these new methods in their work back to their country.

This exhibition will trace what are the opportunities that are available to the Bulgarian students and prospects offered to them as equal European citizens. These possibilities are a direct expression of not only the membership of Bulgaria in the European Union but also active participation in pan-European networks that promote development and research.

2. EUROPEAN RESEARCH COUNCIL (ERC)

One of the most active and most prestigious institutions, working on pan-European level is the European Research Council (European Research Council). It is in fact the first European authority funding initiatives aimed at international research (1).

One of the main tasks of this council is to encourage and support the best, truly creative scientists, engineers and testers that use adventurous methods and take risks in their

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research, crossing the frontiers of knowledge and boundaries of disciplines.

Let us first see how works the European Research Council (ERC), to understand the importance and seriousness of his work. European Research Council has the following organization (3):

- Scientific Council composed of 22 members;
- Supported by the Executive Agency of the ERC (EAERC);
- Has a significant budget (1.1 billion euros per year, 15% of the budget of the 7th Framework Programme);
- High level is the only criterion for evaluation of project proposals;
- Aims to support individual scientists (not a network of organizations).
- International experts responsible for approving project proposals.

What is typical and unique for the winning proposals is that the calls are not clearly defining the themes, which means that a bottom-up approach is tolerated.

However, the projects aim to support cross-border research in all fields of science and humanities. Calls for proposals have only a few general requirements. None of them directly concerns the main researcher. His nationality, age or current employment are not relevant in the selection and evaluation.

Requirements to the host organization are to be located in a Member State or Associate, and international research projects can be from all fields of science, all methods are admissible (investigator-driven approach is "bottom-up"). For this purpose a separate research team is established or in other words, the main researcher is free to choose members of his future team.

Two complementary financing schemes are available. They are divided according to the experience of the candidates - Starting Grant and Advanced Grant ⁽²⁾.

The Starting Grant (StG) aims to attract and retain within the European Union the next generation of leading independent researchers. To this end, it provides funding up to € 2 million for 5 years. This scheme supports researchers at the beginning of their independent research careers, to contribute to establishing or strengthening their own independent researches and team (or

innovative research programs). Thus provides a structure for transition from working under the supervision of an independent leader-researcher.

Advanced Grant (AdG) attracts and rewards established leading independent researchers, and funding could be up to € 3.5 million for 5 years. This scheme is designed to support distinguished, initiated by the already established leading independent researchers, international projects. Support such projects focus on researchers who have already established their independence as leaders and outstanding leaders in the importance of their research achievements (in the last 10 years).

Areas in which the project proposals may cover are (2):

Life sciences

- LS1 Molecular & Structural Biology & Biochemistry
- LS2 Genetics, Genomics, Bioinformatics & Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology & Endocrinology
- LS5 Neurosciences & neural disorders
- LS6 Immunity & infection
- LS7 Diagnostic tools, therapies & public health
- LS8 Evolutionary, population & environmental biology
- LS9 Applied life sciences & biotechnology

Social Sciences and Humanities

- SH1 Individuals, institutions & markets
- SH2 Institutions, values, beliefs and behaviour
- SH3 Environment & society
- SH4 The Human Mind and its complexity
- SH5 Cultures & cultural production
- SH6 The study of the human past

Physical and Engineering Sciences

- PE1 Mathematical foundations
- PE2 Fundamental constituents of matter
- PE3 Condensed matter physics
- PE4 Physical & Analytical Chemical sciences
- PE5 Materials & Synthesis
- PE6 Computer science & informatics

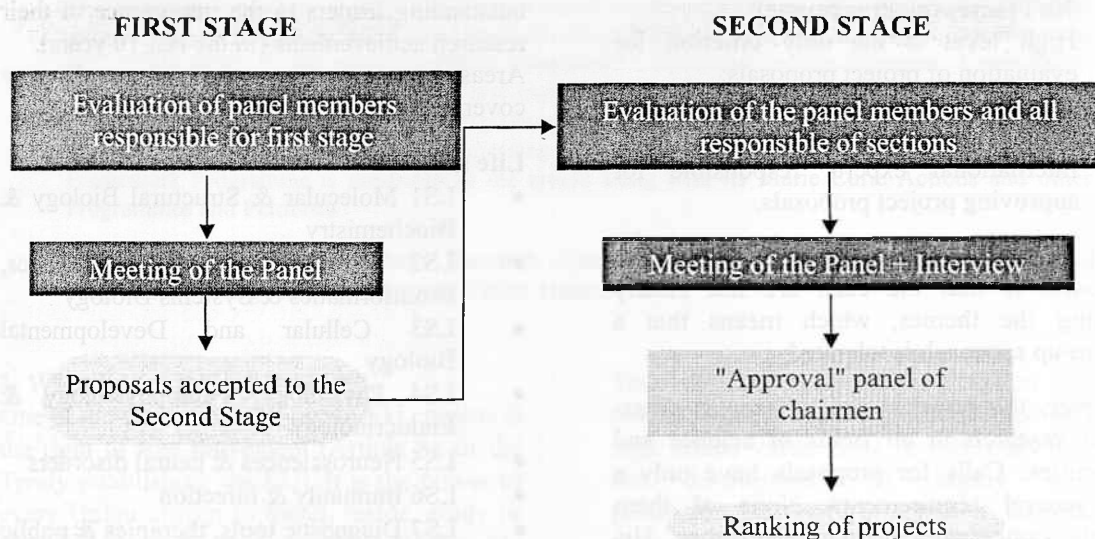
- PE7 Systems & communication engineering
- PE8 Products & process engineering
- PE9 Universe sciences
- PE10 Earth system science

Project proposals are evaluated by international experts. The verification is carried out in 25 separate panels, that we noted above, which are divided according to the two grants. The panels are composed of 12-15 members who evaluate the projects plus

President and are coordinated by a representative of the ERC. Between all of them only two were Bulgarians.

Panels may, if necessary include external evaluators. The panels are grouped by key areas of science, covering all fields of science, technology and knowledge.

Evaluation of the projects is according to the following schedule:



Successful project passes through the following stages to be evaluated:

- be assessed only published criteria in the guidelines
- Assessment of the originality of the project on 2 levels:
 - Quality of basic research
 - Quality of research project
- • Innovative nature (challenge, ambition, interdisciplinary, new concepts)
- • Potential impact (opens new horizons, improving international cooperation in Europe)
- • Methodology (approach, duration, resources, feasibility)
- • Value high risk / high profit (or unpopular new methodology, a significant discovery)

Applicant for Starting Grant (StG) must possess the following profile:

- The first doctorate to be taken 2-12 years before the publication of the call for proposals
- Have at least one independent publication
- Have a history of promising scientific developments in the early stages:
 - Significant publications
 - Invitations to conferences
 - Funding, patents, awards
- Be in a specific career stage at the time of her candidacy - beginner or stage of approval.

The amount of aid candidates can get under the scheme are up to 1,5 million for 5 years. Eligible costs are those supporting the project (staff, materials, supplies, travel, administrative)

To qualify for the Advanced Grant (AdG) a scientist must demonstrate that:

- Promotes significant progress beyond the known

- Encourage the opening of the new and improved research techniques, new methods and techniques including non-traditional approach and research, spanning between established disciplines
- Research on the type of high risk / high profit
- It is targeted to scientists who want to develop their research in new directions

The project budget can reach 2.5 million to 5 years and could reach up to 3.5 million if the principal investigator moves from a third country in Europe, the project includes more than one main researcher or intends to purchase major equipment

3. 7TH FRAMEWORK PROGRAMME

The full name of FP7 is: Seventh Framework Programme for Research and Technological Development. It will last for seven years - from 2007 to 2013 the program has a total budget of over 50 billion euros (5). Money (for the most part) will be spent on grants to researchers across Europe and beyond, to co-research, technological development and demonstration projects.

7th Framework Programme is divided into specific programs that make up the five major building blocks of FP7 (4):

- "Cooperation"
- "Ideas"
- "People"
- "Capacities"
- "Euratom"

"People" Programme (8) provides support for researchers' mobility and career development, both for researchers in the European Union and beyond. Implemented via a set of Marie Curie actions, the programme provides fellowships and other measures to help researchers to build their skills and expertise, developing their career.

Training of researchers - Network Marie Curie consists in partnership and interaction between industry and academia as co-regional, national and international mobility programs through scholarships, "Intra-European" and international dimension: scholarships provided "exit out" Europe and for "coming in" Europe as well as international cooperation schemes and grants for reintegration. (6). The most

successful projects are award-winning Marie Curie.

Marie Curie Actions are (7):

- Intra-European Fellowships for career development (IEF)
 - At various stages of their careers, experienced researchers can learn new research skills or experience in other sectors. Intra-European Fellowships for career development focuses specifically at supporting experienced researchers who want to try something new for awhile.
 - Researchers can be of any nationality, but as a whole needs to move from one Member State or associated country to another to carry out the project. They must have either a PhD or at least 4 years full-time research experience after obtaining the degree possible to embark on a doctorate.
- Career Integration Grants (CIG)
 - Many researchers working around the world aspire to a stable position in the European research institution. This grant scheme helps them achieve this.
 - Applicants must be experienced researchers from all countries in the world, with at least 4 years research experience or a PhD. Must be actively engaged in research, but may not have been active in the state of the host organization for more than twelve months in the last three years. Finally, they should not have previously benefited from another grant for a European or international career integration.
- International Outgoing Fellowships for career development (IOF)
 - European researchers can learn much from conducting researches on high level and in other parts of the world.
 - The scheme is designed for researchers who are nationals of Member States and associated countries. Applicants must have either a doctorate or at least 4 years research experience after obtaining the degree possible to embark on a doctorate. Even more experienced candidates are welcome and this will affect their chances.

These are just some of the many opportunities the EU offers to young scientists to enhance their mobility, work cooperatively with promising scientists from other countries and finding suitable staff.

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