



**Application forms – Part 1**  
**„COMPETITION FOR FINANCIAL SUPPORT FOR BASIC RESEARCH PROJECTS – 2018”**  
**Administrative description of the project**

<b>Competition:</b>
Competition for financial support of basic research projects – 2018
<b>Main research/thematic area, of the project:</b>
Physical Sciences/Theoretical and Mathematical Physics
<b>Additional research/thematic area – for interdisciplinary projects:</b>
Mathematical Sciences and Informatics/ Applications of Mathematics in Physics
<b>Project title:</b>
Algebraic Methods in Quantum Statistics and Applications in Quantum Systems
<b>Type of the planned research (fundamental or applied):</b>
Fundamental
<b>Applying organization:</b>
Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences
<b>Partner organizations:</b>
<b>Coordinator of the research team (academic position and degree, name):</b>
Assoc. Prof., Dr.Sc. Nedialka Ilieva STOILOVA
<b>Coordinator’s address (postal, electronic, phone):</b>
Postal: Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences Boul. Tsarigradsko Chaussee 72, 1784 Sofia, Bulgaria E-mail: stoilova@inrne.bas.bg , website: <a href="http://theo.inrne.bas.bg/~stoilova/">http://theo.inrne.bas.bg/~stoilova/</a> Phone: +359 2 9795 641
<b>Requested budget for accomplishment of the project (in BGN, 1.00 EUR = 1.95583 BGN):</b>
120 000 BGN =61 355 EUR

**Coordinator of the research team:**  
*(signature)*

/...../

**For applying organization (position):**  
*(signature and stamp)*

/...../



***Abstract of the project:***

Mathematical Physics, being one of the important scientific-research disciplines in modern physics, always played a role of a sustainable bridge between pure and applied mathematics and various branches of physics such as quantum mechanics, particle and nuclear physics, condensed matter, optics, computer science, both in theory and experiment. Despite the fact that nowadays a lot of important results are known and applied in the above mentioned disciplines by using Lie (super)algebras, their generalizations and relevant quantum mechanical models researchers still need novel and more advanced results in this field. The research will enable and promote innovative techniques and improve the knowledge in the fields of representation theory of (generalized) Lie (super)algebras and generalized quantum statistics. It will open up new connections between different areas in quantum statistics, high energy and nuclear physics and contribute to understanding the nature of dark matter. The proposed multidisciplinary research will also most certainly contribute to excellence and competitiveness and will add value for Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences.

The financial support will diversify the competences of all team members in the research project, expanding their respective collaboration networks. It will increase substantially the capacity of the researchers.

***Distribution of the requested budget for accomplishment of the project (in BGN) between the applying and partner organizations***

***Organization:***

INRNE, BAS

Amount: 120 000 BGN =61 355 EUR

***Organization:***

Amount:

***Organization:***

Amount:

***Organization:***

Amount:

***Requested total budget for accomplishment of the project (in BGN):***

120 000 BGN =61 355 EUR



## Members of the research team

<i>Organizations/team members<sup>1</sup></i>	<i>Note<sup>2</sup></i>	<i>Signature<sup>3</sup></i>
<b><i>Applying organization:</i></b>		
Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences		
<b><i>Coordinator of the research team</i></b>		
1. Assoc. Prof. Dr.Sc. Nedialka Ilieva STOILOVA		
<b><i>Team members:</i></b>		
2. Assoc. Prof. Dr.Sc. Nikolay Minkov PETROV		
3. Assist. Prof. Dr. Stoimen Todorov Stoimenov		
4. Prof. Dr.Sc. Joris Van der Jeugt		
5. Assist. Dr. Roy Oste	Ghent University PD, Ghent University	
<b><i>Partner organization:</i></b>		
<b><i>Team members:</i></b>		
<b><i>Partner organization:</i></b>		
<b><i>Team members:</i></b>		
<b><i>Partner organization:</i></b>		
<b><i>Team members:</i></b>		

<sup>1</sup> Please, include the academic position and degree of each team member.

<sup>2</sup> Please, include the following notes: JR for junior researchers, PD for post-doc, PS for PhD student, ST for student, RT for retired scientist, or RA for researcher from abroad. In this column, please, indicate the affiliation of the team member if she/he is not working in the corresponding applying or partner organization.

<sup>3</sup> For scholars from abroad, no signature is required. Instead a written agreement signed by the foreign scientist should be provided. For the application the agreement can be provided as a scanned document. If the project is funded, the original signed document will be required at the time of signing the contract.