

**Priority topics of scientific cooperation between ASCR and BAS
2014 – 2016**

№	Project title	Institute/Project coordinator BAS	Institute/Project coordinator ASCR	
1.	Periodical and impulse variations of geodetic time series	National Inst. of Geophysics, Geodesy and Geography Prof. Yavor Chapanov, Dsc.	Astronomical Inst. Dr. Cyril Ron	
2.	RENEWAL Spectroscopic Investigation of Active Early Type Stars and Their Circumstellar Envelopes	Institute of Astronomy Dr. Lubomir Iliev	Astronomical Institute RNDr. Jiří Kubat , PhD	
3.	Application of magnetic measurements to assess the degree of soil contamination and soil development	National Inst. of Geophysics, Geodesy and Geography Dr. Daniela Jordanova	Institute of Geophysics Dr. Eduard Petrovsky	
4.	RENEWAL Content Presentation and Services Integration in Czech and Bulgarian Mathematical Digital Libraries	Inst. of Mathematics and Informatics Prof. Petar Stanchev	Inst. of Mathematics RNDr. Jiří Rákosník, CSc.Institute	
5.	Investigation of optical and structural properties of special glasses for photonic applications	Inst. of Solid State Physics Assoc. Prof. Dr. Zoja Ivanova	Inst. of Photonics and Electronics Dr. Jiří Zavadil	
6.	Characterization of electromagnetic Phenomena in the Eart-Atmosphere System and ULF Magnetic Field measurements	Space and Solar-Terrestrial Research Institute Dr. Dimitar Teodosiev	Inst. of Atmospheric Physics Ing. Jaroslav Vojta	
7.	RENEWAL Development of measurement techniques for analysis of electromagnetic waves in space plasmas	Space and Solar-Terrestrial Research Institute BAS Dr. Boycho Boychev	Inst. of Atmospheric Physics Ondřej Santolík	
8.	The Earth's upper atmosphere in a period of secular solar minimum	Space and Solar-Terrestrial Research Institute Assoc. prof. Katya Georgieva	Inst. of Atmospheric Physics Petra Koucká Knížová	

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9.	Physical processes at the plasma edge on the COMPASS Tokamak	Institute of Electronics Miglena Dimitrova Borisova, PhD.	Inst. of Plasma Physics RNDr. Jan Stockel, CSc.	
10.	High Performance Computing for Innovations	Institute of Information and Communication Prof. Svetozar Margenov	Institute of Geonics Prof. Radim Blaheta	
11.	Comparative evaluation of land use practices in vulnerable case study areas in Bulgaria and Czechia	National Inst. of Geophysics, Geodesy and Geography Assoc. Prof. Dilyana Stefanova, PhD.	Inst. of Geonics Doc. RNDr. Antonín Vaishar, CSc.	
12.	Application of radiocarbon dating in the research of karst systems	National Inst. of Geophysics, Geodesy and Geography Mgr. Petar Stefanov	Nuclear Physics Inst. Ing. Ivo Svetlik	
13.	RENEWAL The Effect of Solar-particle-event Dynamics on Radiation Exposure on Board Aircrafts and Spacecrafts	Space and Solar-Terrestrial Research Institute Prof. Tsvetan Dachev	Nuclear Physics Institute Ondrej Ploc	
14.	Interaction of therapeutical nanoparticles with human blood and its constituents and their effect on blood flow properties	Inst. of mechanics Prof. Dr. Nadia Antonova, Ph.D.	Institute of Hydrodynamics Ing. Pavel Říha, CSc.	
15.	Tectonic activity of the significant karst systems (development correlation of the Central Europe and Mediterranean area)	National Institute for Geophysics, Geodesy and Geography Petar Stefanov	Inst. of Rock Structure and Mechanics RNDr. Miloš Briestenský, Ph.D.	
16.	Induced and natural seismicity at Provadia (Bulgaria) – origins and consequences, stage II	National Inst. of Geophysics, Geodesy and Geography Assoc. prof. Liliya Dimitrova, Ph.D.	Inst. of Rock Structure and Mechanics Ing. Jiří Málek	
17.	RENEWAL Monitoring and prognosis of geological hazard processes	Geological Institute Dr. Nikolai Dobrev, Ph.D.	Inst. of Rock Structure and Mechanics RNDr. Josef Stemberk, CSc.	

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18.	Antioxidative and antiinflammatory effects of black chokeberry (<i>Aronia melanocarpa</i>) polyphenols with respect to intestinal inflammation	Institute of Organic Chemistry with Centre of Phytochemistry, Laboratory of Biologically Active Substances – Plovdiv Dr. Petko Denev, Ph.D.	Institute of Biophysics Doc. RNDr. Antonín Lojek, CSc.	
19.	Investigation on the antiradical (radical scavenging) capacity and antitumor activity of substituted benzimidazole derivatives and their complexes with metals (Cu, Co, Ni)	Inst. of Organic Chemistry and Centre of Phytochemistry Assoc. Prof. Ivan Goshev	Inst. of Biophysics RNDr. Milan Ciz	
20.	Species diversity and delimitation of the genus <i>Ecdyonurus</i> Eaton, 1868 (Insecta, Ephemeroptera, Heptageniidae) within the Balkans and Pontic region	Institute of Biodiversity and Ecosystem Research Ass. Yanka N. Presolska	Inst. of Entomology Biology Centre Dr. Roman Hodunko, CSc.	
21.	Biology and ultrastructure of tapeworms (Cestoda)	Inst. of Biodiversity and Ecosystem Research Aneta Yoneva, PhD	Institute of Parasitology Biology Centre Prof. Tomáš Scholz	
22.	RENEWAL Expression of Genes and Proteins with Role in the fertilization	Inst. of Biology and Immunology of Reproduction Assoc. Prof. Dr. Pavel Rashev, Ph.D.	Inst. of Biotechnology Doc. RNDr. Jana Peknicova, CSc.	
23.	Study of biotechnological potential of extremophilic and extremotolerant algae and cyanobacteria	Institute of Plant Physiology and Genetics Prof. Ivan Iliev	Institute of Botany RNDr. Jaromír Lukavský, CSc.	
24.	Assessing the adaptive capacity of representative forest ecosystems to environmental change in the Pirin, Strandzha and Giant Mountains	Inst. of Biodiversity and Ecosystem Research Dr. Svetla Bratanova-Doncheva	Global Change Research Centre Doc. RNDr. Pavel Cudlin, CSc.	
25.	Study the role of brain adenosine A1 and A2A receptors in mechanisms modulating seizure susceptibility during ontogenesis and adulthood	Inst. for Neurobiology Assoc. Prof. Jana Tchekalarova, Ph.D.	Inst. of Physiology Prof. MUDr. Pavel Mareš, DrSc	

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26.	Compounds of low aminoacids with metal halogenides. Relation carbon chain-composition-structure-proton conductivity-magnetic behaviour	Inst. of General and Inorganic Chemistry Assoc. Prof. Dr. Stefka Tepavitcharova	Institute of Inorganic Chemistry RNDr. Jiří Plocek, Ph.D.	
27.	Synthesis and characteristic of new materials with mixed octahedral-tetrahedral frameworks	Inst. of Mineralogy and Crystallography RNDr. Rositsa Petrova	Inst. of Inorganic Chemistry Dr. Snejana Bakardjieva	
28.	Ecosystem consequences of biodiversity change due to fish species invasions	Inst. of Biodiversity and Ecosystem Research Assist. Teodora Trichkova	Inst. of Vertebrate Biology Dr. Pavel Jurajda, Ing.	
29.	Interrelations between endogenous hormonal status and essential oils production in <i>Artemisia alba</i> tissue cultures	Inst. of Organic Chemistry with Centre of Phytochemistry Dr. Kalina Danova	Inst. of Experimental Botany Ing. Václav Motyka, CSc.	
30.	Hormonal control of cold stress tolerance in <i>Arabis alpina</i>	Inst. Of Plant Physiology and Genetics Assoc. Prof. Dr. Kalina Ananieva	Inst. of Experimental Botany Ing. Petre I. Dobrev, CSc.	
31.	RENEWAL Life environment and heterogeneous catalysis	Inst. of Catalysis Dr. G. Tyuliev	Inst. of Chemical Process Fundamentals Mgr. Luděk Kaluža	
32.	RENEWAL Phase equilibria for supercritical fluid extraction	Inst. of Chemical Engineering Prof. Dr. Roumiana Stateva	Inst. of Chemical Process Fundamentals Ing. Helena Sovova, CSc.	
33.	Thin nanostructured films for application in nanophotonics	Inst. of Optical Materials and Technologies Assoc. Prof. Dr. Rosen Todorov	Inst. of Macromolecular Chemistry Božena Frumarová	
34.	Design, synthesis and characterization of a new class of cationic antimicrobial peptides and peptide mimetics	Inst. of Molecular Biology Assoc. Prof. Tamara Paypanova, Ph.D.	Inst. of Organic Chemistry and Biochemistry RNDr. Václav Kašička, CSc	
35.	Degradation of warfare agents and toxic VOCs pollutants on nanostructured mixed oxide of transition metals	Inst. of Organic Chemistry with Centre of Phytochemistry Prof. DSc. Tanya Hristova	Institute of Inorganic Chemistry Mgr. Václav Štengl, Ph.D.	

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36.	Influence of various environmental factors on spermatogenesis, ovogenesis and embryogenesis in experimental animals	Inst. of Biology and Immunology of Reproduction Prof. Dimitrina Kacheva, DVM	Inst. of Animal Physiology and Genetics Ing. Lucie Nemcova	
37.	Transformation in the reception of traditional culture, in migration movements and in popular religiosity, resulting from social and cultural changes in Bulgaria and the Czech Republic in the current era	Inst. of Ethnology and Folklore Studies with Ethnographic Museum Assoc. Prof. Vladimir Penchev	Inst. of Ethnology Dr. Jaroslav Otčenášek	
38.	Philosophical Foundations of Logic	Institute for the Study of Societies and Knowledge Assoc. Prof. Dr. Doroteya Angelova	Institute of Philosophy Mgr. Vít Punčochář	
39.	Between Vienna and Constantinople. Nationalism in central and Southeastern Europe after the dissolution of the Habsburg and Ottoman Empires	Inst. for Balkan Studies with Center for Thracology Assoc. Prof. Roumiana Preshlenova	Masaryk Institute – Archives of the ASCR Prof. Jan Rychlik	
40.	Index verborum to the Book of the Prophet Isaiah in the Church Slavonic Translation	Kirilo-Methodievski naučen centar Assoc. Prof. dr. Tatjana Ilieva	Inst. of Slavonic studies Mgr. Václav Čermák, Ph.D.	
41.	RENEWAL Czech Slavonic Studies about Bulgarians (beginning of the 19 th century up to 1918) – second part	Inst. for Historical Studies Assoc. Prof. Teodoritchka Gotovska-Henze	Inst. of Slavonic Studies Dr. Marcel Černý	
42.	Slavonic Lexicography at the Beginning of 21st Century	Inst. For Bulgarian Language Assoc. Prof. Sija Kolykovska, Ph.D.	Inst. Of Slavonic Studies Mgr. Bozhana Nisheva, Ph.D.	
43.	Historical Legacies and New Political Challenges – Bulgaria and the Czech Republic in EU	Inst. for the Research of Societies and Knowledge Assoc. Prof. Dobrinka Kostova	Institute of Sociology Dr. Zdenka Mansfeldova	
44.	Automatic Identification of Named Entities in Bulgarian and Czech	Inst. for Bulgarian Language Assoc. Prof. Tsvetana Dimitrova, Ph.D.	Inst. for Czech Language Doc. RNDr. Karel Oliva	