

Radiation mechanisms of astrophysical objects: classics today

Proceedings of the conference
in honor of the 100th birthday of Academician V.V. Sobolev
held at St. Petersburg on September 21–25, 2015

Edited by
V. P. Grinin, H. Harutyunian, V. B. Il'in,
A. F. Kholtygin, A. Nikoghossian

Editors:

Vladimir P. Grinin

Hayk Harutyunian

Vladimir B. Il'in

Alexander F. Kholtygin

Artur Nikoghossian

Radiation mechanisms of astrophysical objects: classics today —

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Studies of radiation mechanisms and processes of spectra formation in astronomical objects are among the fundamental tasks of modern astrophysics. A powerful tool for the solution of these problems is provided by the theory of radiative transfer, which has been substantially contributed to and developed by Victor Victorovich Sobolev. The conference highlighted recent advances in the field of the interests of V.V. Sobolev. The proceedings provide the permanent record of what was presented at the meeting and include various papers on radiative transfer theory, interstellar matter, stellar atmospheres and circumstellar matter, planetary atmospheres, and high-energy astrophysics and cosmology.

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Preface

We are very pleased to introduce the proceedings of the international conference “Radiation mechanisms of astrophysical objects: classics today” held at the St. Petersburg State University and Main (Pulkovo) Astronomical Observatory from September 21 to 25, 2015. The meeting was related to the 100th anniversary of Academician Victor Victorovich Sobolev celebrated on September 2, 2015 and highlighted recent advantages in the research fields to which V.V. Sobolev contributed prominently.

The conference was highly successful. It included the plenary sessions featuring review talks by internationally recognized experts as well as a memorial session. Original scientific results were presented in the sections: i) radiative transfer theory; ii) interstellar matter; iii) stellar atmospheres, circumstellar matter, and planetary atmospheres; iv) high-energy astrophysics and cosmology. There were all together about 130 contributions, with many papers being focused on the development of Sobolev’s ideas in modern astrophysics. The program, book of abstracts, some presentations, a large photogallery and other materials including these proceedings are available at the conference web site <http://www.astro.spbu.ru/Sobolev100>.

The proceedings provide the permanent record of what was presented at the meeting. The plan of the book follows the conference program: four parts of the book correspond to the above mentioned sections. Each part begins with review papers, then the oral presentations follow in the alphabetic order of their first author, and finally a few poster papers are placed. In an appendix written by V.V. Ivanov in Russian, one can find a brief biography of V.V. Sobolev, a clear resume on his main scientific achievements and a brilliant description of his features as a pedagogue, an organizer, and just a person. It should be added that extended versions of 10 conference papers on radiative transfer theory have been published in the special issue of *Journal of Quantitative Spectroscopy and Radiative Transfer* (2016, vol. 183) entitled “Victor V. Sobolev and his scientific legacy.”

We would like to thank participants for their contributions to the conference and these proceedings. The meeting could not also have happened without the Local Organizing Committee, who made a tough work to assemble and run the conference, and the Scientific Organizing Committee, who guided the direction of the conference and assisted with its program. We are glad to acknowledge the financial support from the St. Petersburg State University and the Russian Foundation for Basic Research. We are also deeply indebted to the Byurakan Astrophysical Observatory that sponsored the publication of the proceedings. Last but not least, we would like to thank Yulia Milanova, Roman Baluev, and Alexander Pocheketa for their very valuable assistance in preparation of this book.

The Editors



List of the Conference Participants

Martin Abrahamyan, Yerevan State University, Armenia
Yulia Aikasheva, Herzen State Pedagogical University, Russia
Vitaly Akimkin, Institute of Astronomy of the RAS (INASAN), Russia
Alexey Alakoz, Astro Space Center of Lebedev Physical Institute (ASC LPI), Russia
Ilya Alekseev, Crimean Astrophysical Observatory (CrAO), Russia
Sofya Alexeeva, Institute of Astronomy of the RAS (INASAN), Russia
Elena Babina, Crimean Astrophysical Observatory (CrAO), Russia
Sergei Balashev, Ioffe Institute, Russia
Dmitry Barsukov, Ioffe Institute, Russia
Oksana Belova, Sternberg Astronomical Institute (SAI MSU), Russia
Svetlana Berdyugina, Kiepenheuer Institute for Solar Physics (KIS), Germany
Alexander Berezhnoi, St. Petersburg branch of Astronomical-Geodesic Society, Russia
Nina Beskrovnaya, Main (Pulkovo) Astronomical Observatory, Russia
Ilfan Bikmaev, Kazan (Volga region) Federal University (KFU), Russia
Anastasia Bisyarina, Ural Federal University (UrFU), Russia
Sergey Blinnikov, Institute for Theoretical and Experimental Physics (ITEP), Russia
Valeria Borovik, Main (Pulkovo) Astronomical Observatory, Russia
Konstantin Bychkov, Sternberg Astronomical Institute (SAI MSU), Russia
Andrey Bykov, Ioffe Institute, Russia
Alex Carciofi, University of São Paulo, Brazil
Sandip Chakrabarty, S.N. Bose National Centre for Basic Sciences, India
Pascal Chardonnet, University of Savoy Mont Blanc, France
Anatol Cherepashchuk, Sternberg Astronomical Institute (SAI MSU), Russia
Gennadiy Chernov, N. Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation of the RAS (IZMIRAN), Russia
Eugene Churazov, Space Research Institute, Russia and Max-Planck-Institute for Astrophysics (MPA), Germany
Rustam Dagkesamanskii, Pushchino Radio Astronomy Observatory (PRAO), Russia
Andrey Dementyev, St. Petersburg State University (SPbSU), Russia
Tatiana Demidova, Main (Pulkovo) Astronomical Observatory, Russia
Zhanna Dlugach, Main Astronomical Observatory (MAO NASU), Ukraine
Denis Dmitriev, St. Petersburg State University (SPbSU), Russia
Helmut Domke, Berlin, Germany
Viacheslav Dushin, St Petersburg State University (SPbSU), Russia
Tamara Ermolaeva, Main (Pulkovo) Astronomical Observatory, Russia
Andres Escala, University of Chile, Chile
Sergei Fabrika, Special Astrophysical Observatory (SAO RAS), Russia
Marat Gil'fanov, Space Research Institute, Russia
Yuri Gnedin, Main (Pulkovo) Astronomical Observatory, Russia
Ol'ga Golubchina, St. Petersburg branch of SAO RAS, Russia
Mikhail Gornostaev, Sternberg Astronomical Institute (SAI MSU), Russia
Vitaliy Grigoryev, St. Petersburg State University (SPbSU), Russia
Vladimir Grinin, Main (Pulkovo) Astronomical Observatory, Russia

Hayk Harutyunian, Byurakan Astrophysical Observatory (BAO), Armenia
Swetlana Hubrig, Leibniz Institute for Astrophysics Potsdam (AIP), Germany
Subhon Ibadov, Institute of Astrophysics, Tajik Academy of Sciences (IA TAS), Tajikistan
Nazar Ikhsanov, St. Petersburg State University (SPbSU), Russia
Vladimir Il'in, St. Petersburg State University (SPbSU) and Main (Pulkovo) Astronomical Observatory, Russia
Nariman Ismailov, Shamakhi Astrophysical Observatory (ShAO ANAS), Azerbaijan
Alexander Ivanchik, Ioffe Institute, Russia
Pavel Ivanov, Astro Space Centre of Lebedev Physical Institute (ASC LPI), Russia
Natalia Kalinina, Ural Federal University (UrFU), Russia
Alexander Kaminker, Ioffe Institute, Russia
Maria Katsova, Sternberg Astronomical Institute (SAI MSU), Russia
Natalia Katysheva, Sternberg Astronomical Institute (SAI MSU), Russia
Andrey Kazantsev, Pushchino Radio Astronomy Observatory ASC LPI (PRAO), Russia
Edward Khachikian, Byurakan Astrophysical Observatory (BAO), Armenia
Alexander Kholtygin, St. Petersburg State University (SPbSU), Russia
Vitaliy Kim, Main (Pulkovo) Astronomical Observatory, Russia
Nikolai Kiselev, Main Astronomical Observatory (MAO NASU), Ukraine
Alexander Kolesov, St. Petersburg State University (SPbSU), Russia
Serguei Komissarov, University of Leeds, United Kingdom
Flera Kopylova, Special Astrophysical Observatory (SAO RAS), Russia
Maria Kostina, St. Petersburg State University (SPbSU), Russia
Yuri Kovalev, Astro Space Center, Lebedev Physical Institute (ASC LPI), Russia
Olesya Kozlova, Crimean Astrophysical Observatory (CrAO), Russia
Jacek Krelowski, Nicolaus Copernicus University, Poland
Sergey Levshakov, Ioffe Institute, Russia
Moisey Livshits, N. Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation of the RAS (IZMIRAN), Russia
Alexander Lutovinov, Space Research Institute, Russia
Leonid Lyubimkov, Crimean Astrophysical Observatory (CrAO), Russia
Olga Maryeva, Special Astrophysical Observatory (SAO RAS), Russia
Liudmila Mashonkina, Institute of Astronomy of the RAS (INASAN), Russia
Aleksei Medvedev, St. Petersburg State University (SPbSU), Russia
Khidir Mikayilov, Shamakhi Astrophysical Observatory (ShAO ANAS), Azerbaijan
Yulia Milanova, St. Petersburg State University (SPbSU), Russia
Michael Mishchenko, NASA Goddard Institute for Space Studies, United States
Anna Mokrushina, Main (Pulkovo) Astronomical Observatory, Russia
Egor Morchenko, Sternberg Astronomical Institute (SAI MSU), Russia
Maria Murga, Institute of Astronomy of the RAS (INASAN), Russia
Alexander Mushtukov, Tuorla Observatory, Finland and Main (Pulkovo) Astronomical Observatory, Russia
Dmitrij Nagirner, St. Petersburg State University (SPbSU), Russia
Valery Nagnibeda, St. Petersburg State University (SPbSU), Russia
Aleksandr Nesterenok, Ioffe Institute, Russia
Arthur Nikoghossian, Byurakan Astrophysical Observatory (BAO), Armenia
Evgeniya Nikolaeva, Kazan (Volga region) Federal University (KFU), Russia

Bulat Nizamov, Sternberg Astronomical Institute (SAI MSU), Russia
Lidia Oskinova, University of Potsdam, Germany
Yaroslav Pavlyuchenkov, Institute of Astronomy of the RAS (INASAN), Russia
Oganes Pikichyan, Byurakan Astrophysical Observatory (BAO), Armenia
Mikhail Pogodin, Main (Pulkovo) Astronomical Observatory, Russia
Konstantin Postnov, Sternberg Astronomical Institute (SAI MSU), Russia
Alexander Potekhin, Ioffe Institute, Russia
Ilya Potravnov, Main (Pulkovo) Astronomical Observatory, Russia
Juri Poutanen, University of Turku, Finland
Marina Prokopenko, St. Petersburg State University (SPbSU), Russia
Dmitriy Rodionov, Herzen State Pedagogical University, Russia
Nikolai Rogovtsov, Belarusian National Technical University (BNTU), Belarus
Bayram Rustamov, Shamakhi Astrophysical Observatory (ShAO ANAS), Azerbaijan
Nail Sakhbullin, Kazan (Volga region) Federal University (KFU), Russia
Svetlana Salii, Ural Federal University (UrFU), Russia
Igor' Savanov, Institute of Astronomy of the RAS (INASAN), Russia
Elena Seifina, Sternberg Astronomical Institute (SAI MSU), Russia
Alexander Semyannikov, Volgograd State University (VolSU), Russia
Alexey Semyonov, Main (Pulkovo) Astronomical Observatory, Russia
Asoke Kumar Sen, Assam University, India
Nadezhda Shakhvorostova, Lebedev Physical Institute (LPI RAS), Russia
Margarita Sharina, Special Astrophysical Observatory (SAO RAS), Russia
Yuri Shchekinov, Southern Federal University (SFU), Russia
Vladislav Shimansky, Kazan (Volga region) Federal University (KFU), Russia
Sergei Shulman, St. Petersburg State University (SPbSU), Russia
Gustav Shved, St. Petersburg State University (SPbSU), Russia
Nikolai Silant'ev, Main (Pulkovo) Astronomical Observatory, Russia
Tatiana Sitnova, Institute of Astronomy of the RAS (INASAN) and Sternberg
Astronomical Institute (SAI MSU), Russia
Ksenia Smirnova, Ural Federal University (UrFU), Russia
Andrej Sobolev, Ural Federal University (UrFU), Russia
Dmitry Sokoloff, Moscow State University and IZMIRAN, Russia
Natalia Sotnikova, St. Petersburg State University (SPbSU), Russia
Svetlana Starikova, Smithsonian Astrophysical Observatory (SAO), United States
Natalia Sudnik, St. Petersburg State University (SPbSU), Russia
Rashid Syunyaev, Space Research Institute, Russia
Larisa Tambovtseva, Main (Pulkovo) Astronomical Observatory, Russia
Anatoliy Tarasov, Crimean Astrophysical Observatory (CrAO), Russia
Daria Teplykh, Pushchino Radio Astronomy Observatory ASC LPI (PRAO), Russia
Lev Titarchuk, University of Ferrara, Italy
Olga Tsiopa, Main (Pulkovo) Astronomical Observatory, Russia
Dmitri Varshalovich, Ioffe Institute, Russia
Evgenii Vasiliev, Southern Federal University (SFU), Russia
Oleg Verkhodanov, Special Astrophysical Observatory (SAO RAS), Russia
Vitaly Vertogradov, Herzen State Pedagogical University, Russia
Tõnu Viik, Tartu Observatory, Estonia

Alexey Vikhlinin, Smithsonian Astrophysical Observatory (SAO), United States

Alexander Vinokurov, Special Astrophysical Observatory (SAO RAS), Russia

Yaroslav Voronov, Herzen State Pedagogical University, Russia

Nikolai Voshchinnikov, St. Petersburg State University (SPbSU), Russia

Dmitri Wiebe, Institute of Astronomy of the RAS (INASAN), Russia

Dmitry Yakovlev, Ioffe Institute, Russia

Svetlana Yakovleva, Herzen State Pedagogical University, Russia

Valeria Yakovleva, St. Petersburg State University (SPbSU), Russia

Valentine Yankovsky, St. Petersburg State University (SPbSU), Russia

Saleem Zaroubi, University of Groningen, The Netherlands