

C U R R I C U L U M V I T A E
Dr ZORAN KNEŽEVIĆ, Academician

Born: 23.8.1949. Osijek (Croatia)

Education

B.S., Astronomy, Belgrade University, 1972

M.Sc., Celestial Mechanics, Belgrade University, 1976

Ph.D., Celestial Mechanics, Belgrade University, 1989

Corresponding member of the Serbian Academy of Sciences and Arts, 2009

Full member of the Serbian Academy of Sciences and Arts, 2015

Research Interests

Dynamical and physical processes in the solar system;

Long-term orbital evolution of planets and asteroids, secular resonances;

Determination of asteroid proper orbital elements;

Identification and ages of asteroid families, non-gravitational effects;

Asteroid preliminary orbit determination;

Analytical theories of motion of lunar orbiters;

Determination of asteroid masses;

Statistical analyses of asteroids;

Astrometry and photometry of small solar system objects.

Experience

Employed at Astronomical Observatory, Belgrade, 1973 – 2016.

Theoretical: Studies of statistical properties of the numbered minor planets sample and of selection effects involved in discoveries of minor planets; determination of orientations of asteroid rotation axes by means of the amplitude-magnitude method; collisional evolution of the asteroid belt, identification, physical properties and ages of asteroid families; computation of asteroid orbits; development of analytical perturbation theory and of a purely numerical method (synthetic theory) for computation of asteroid mean and proper elements; analysis of the effects of mean motion and secular resonances, non-gravitational effects, chaotic dynamics, theory of motion of a lunar polar orbiter, search for the close encounters with large asteroids and determination of asteroid masses. This work has led to several important results, the most significant ones pertaining to the correction, completion and improvement of a second order – fourth degree analytical theory of motion of asteroids, and of the development of an analogous, purely numeric, synthetic theory. The asteroid mean and proper elements computed by means of the latter theory are generally considered as the best available for the purposes of family classification and the study of asteroid long-term dynamics; in addition, a new field of research was opened, the one of nonlinear secular resonances, and a pioneer work was done on the determination of their positions and on their interaction with asteroid families.

Observational: Examination and improvement of the auxiliary devices of the Large Transit Instrument of the Belgrade Observatory (vacuum meridian marks, collimators, levels, etc). Carried out a series of photographic observations of minor planets, which resulted in discovery of several new objects, and a number of photometrical observations of asteroids and variable stars.

Managerial: President of the National Committee for Astronomy of Yugoslavia (1993–1995; 1999–2006). Principal researcher in charge of the projects “Physics and motion of celestial bodies (1993–1995) “Astrometrical, Astrodynamical and Astrophysical Investigations (1996–2000), “Positions and Motion of Small Solar System Bodies (2001–2005), “Dynamics of Celestial Bodies, Systems and Populations (2006), and of the SASA project “Dynamics of the Solar System Bodies (2001–present). Chairman of the Executive Board of the Astronomical Observatory of Belgrade (1994–1997, 2019–present). Chairman of the Scientific Council and of the Workers Council of the Observatory. Director of the Astronomical Observatory of Belgrade (2002–2014). Chairman of the Board for Geosciences and Astronomy of the Ministry of Science and Technological Development of Serbia (2002–2010), Vice-Chairman (2011–2016), member (2017–present). Chairman of the Sub-Regional European Astronomy Committee (2009–2016). Secretary General of the Serbian Academy of Sciences and Arts (2020–present).

Educational:

Professor: Analytical Methods of Celestial Mechanics, Chaotic dynamics, Postgraduate/doctoral studies, Department of Mathematics, University of Belgrade, 1996-present
Lecturer, Quinzieme Ecole de Printemps d’Astrophysique de Goutelas, France, 1991
Teacher, General Astronomy, final class of high school, 1980,1981,1984

Editorial:

Editor-in-Chief of the Serbian Astronomical Journal and of the Publications of the Astronomical Observatory of Belgrade (2002–2014). Member of the Editorial Board (2014 – present). Member of the Editorial Board of the IAU (2005).

11th National Conference of Yugoslav Astronomers, Belgrade, 1996. Co-Editor of the Proceedings

14th National Conference of Astronomers of Serbia and Montenegro, Belgrade, 2005. Co-Editor of the Proceedings

IAU Colloquium 197: Dynamics of Populations of Planetary Systems, Belgrade, 2004. Co-editor of Proceedings

International Conference Dynamics of Celestial Bodies, Litochoro, Greece, 2008. Co-editor of Proceedings

300 Years from the Birth of Rudjer Boskovich, Belgrade, 2011, Editor of Proceedings

IAU Symposium 310 Complex Planetary Systems, Namur, Belgium, 2014, Co-Editor of the Proceedings

Professional Activities

Associations:

International Astronomical Union - Commissions 7,15,20;
Member of the Organizing Committee of Comm. 15 (1991-1997)
Member of the Organizing Committee of Comm. 7 (1997-2015)
Secretary of the Organizing Committee of Comm. 7 (2003-2006)
Vice-President of the Organizing Committee of Comm. 7 (2006-2009)
President of the Organizing Committee of Comm. 7 (2009-2012)
Member of the Organizing Committee of Div. 1 (2006-2012)
Member of the IAU Resolutions Committee (2009-2012)
Division of Planetary Sciences of the American Astronomical Society
Division of Dynamical Astronomy of the American Astronomical Society
Society of Astronomers of Serbia

Visiting Scientist:

Institute of Astronomy of the Slovak Acad. Sci., Bratislava, Czechoslovakia, 1979
Osservatorio astronomico di Torino, Italy, 1983,1985,1989
Osservatorio astronomico di Milano, Italy, 1995,1997
Department of Astronomy of the University, Budapest, Hungary, 1985
Dipartimento di Matematica, Università di Pisa, Italy, 1987,1988,1990,1991,1992,1993,
1994,1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008,
2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2022
Minor Planet Center, Cambridge, Massachusetts, U.S.A., 1988
Observatoire de la Côte D'Azour, Nice, France 1990,1992, 1994
Dipartimento di Matematica, Università di Padova, Italy, 2000
Observatoire de Meudon, Paris, France, 1992
Université Notre-Dame de la Paix, Namur, Belgium, 1995
Institute of Astronomy and Geophysics, Sao Paulo, Brasil, 1997
Universitätssternwarte, Wien, Austria, 2001
Aristotle University, Thessaloniki, Greece, 2002

Programmatic:

LOC, 2nd National Conference of Yugoslav Astronomers, Belgrade, 1975
LOC, 6th European Regional Astronomy Meeting, Dubrovnik, 1981
LOC, Colloquium No. 100 of the IAU, Belgrade, 1987
SOC, 2nd International Workshop on Catastrophic Disruption of Small Solar System
Bodies, Belgrade, 1987
Workshop Moderator for Asteroids, Comets, Meteors III, Uppsala, Sweden, 1988
SOC, 3rd International Workshop on Catastrophic Disruption of Small Solar System
Bodies, Kyoto, Japan, 1990
SOC, Seventy-Five Years of Hirayama Collisional Families: Past, Present and Future,
Tokyo, Japan, 1993
SOC, 11th National Conference of Yugoslav Astronomers, Belgrade, Co-Editor of the
Proceedings, 1996
SOC, 13th National Conference of Astronomers of Serbia and Montenegro, Belgrade,
2002

SOC, IAU Colloquium 197: Dynamics of Populations of Planetary Systems, Co-chairman of SOC, and Co-editor of Proceedings

SOC, 14th National Conference of Astronomers of Serbia and Montenegro, Chairman of SOC and Co-Editor of the Proceedings, 2005

SAC, Actual Problems in Celestial Mechanics and Dynamical Astronomy, Cluj-Napoca, Romania, 2006

SOC, IAU Symposium 236 (XXVI GA) Near Earth Objects, our Celestial Neighbors: Opportunity and Risk, Prague, 2006

SOC, Latest Progress in Astrophysics, Athens, Greece, 2007

SAC, Studying Nature through Centuries, Belgrade, 2007

PC, Spring school on Strings, Cosmology and Particles, Belgrade, 2009

SOC, IAU Symposium 263 (XXVII GA) Icy Bodies of the Solar System, Rio de Janeiro, 2009

SOC, 6th Sub-Regional European Astronomical Committee (SREAC) Meeting Astrophysics and Astrodynamics in Balkan Countries in the International Year of Astronomy, Belgrade, 2009

SOC, 8th Alexandre von Humboldt Colloquium Resonances in n-body Systems, Bad Hofgastein, Austria, 2011.

SOC Chairman, 300 Years from the Birth of Rudjer Boskovich, Belgrade, 2011, Editor of Proceedings

SOC, IAU Special Session SPS10 Dynamics of the Star-Planet Relation, Beijing, 2012

SOC, XII Congress of Physicists of Serbia, Vrnjačka Banja, Serbia, 2013

SOC, IAU Symposium 310 Complex Planetary Systems, Namur, Belgium, 2014, Co-Editor of the Proceedings

SOC, Past Climate: A Lesson for the future. Regional Climate Change Aspects, Belgrade, 2014

SOC, International Workshop: Stardust ITN Local Training Workshop: Collisions in the Solar System, Belgrade, 2015

SOC, IAU Symposium 318 Asteroids: New Observations, New Models. Honolulu, 2015
Invited talk.

Programme Board, Tribune The Role of Light in the Development of the Society, Serbian Academy of Sciences and Arts, Belgrade, 2015

SOC, Cycle Project "From the Solar System to the Borders of Universe". Serbian Academy of Sciences and Arts, Belgrade, 2016

SOC, Earth's Climate Change: Science and Impacts. Serbian Academy of sciences and arts, Belgrade, 2017

SOC, 2018AMC70: Between Mathematics and Astronomy. Pisa, 2018

SOC, Numerical Weather and Climate Modeling: Beginnings, Now and Vision of the Future. Serbian Academy of Sciences and Arts, Belgrade, 2018

SOC, Science and Philosophy, Serbian Academy of Sciences and Arts, Belgrade 2020

Languages

English, Italian