

Stanislav George Djorgovski

- Current positions:** Professor of Astronomy
Co-Director, Center for Advanced Computing Research
California Institute of Technology
Director, Meta Institute for Computational Astrophysics, <http://mica-vw.org>
- Present address:** MS 249–17, Cahill Center for Astronomy and Astrophysics
Division of Physics, Mathematics, and Astronomy
California Institute of Technology
Pasadena, CA 91125, USA
- Telephone:** [1] (626) 395-4415, Fax: [1] (626) 568-9352
Email: george@astro.caltech.edu
Web: <http://www.astro.caltech.edu/~george/>
- Education:** Ph.D. (Astronomy) University of California, Berkeley, 1985
M.A. (Astronomy) University of California, Berkeley, 1981
B.A. (Astrophysics) University of Belgrade, Yugoslavia, 1979
- Honors/Awards:** Distinguished Visiting Professor, King Abdulaziz Univ., 2011 – present
First Prize, Boeing-Griffith Science Writing Contest, 2008
Fellow, Institute for the Advancement of Engineering, 2001
Presidential Young Investigator, 1991 – 1997
One of the ISI 1000 most cited physicists, 1981 – 1997
NASA Group Achievement Award, 1996
Dudley Observatory Award, 1991
Alfred P. Sloan Foundation Fellow, 1988 – 1991
Harvard Junior Fellow, 1985 – 1987
M. E. Uhl Award for Outstanding Research Contributions, UCB, 1984
Several graduate fellowships, U. C. Berkeley 1981 – 1985
- Professional Societies:** American Astronomical Society (AAS); American Association for Advancement of Science (AAAS); International Astronomical Union (IAU), including several Commissions and Working Groups; Association for Computing Machinery (ACM), including the SIG on Knowledge Discovery in Databases (SIGKDD).
- Professional Interests:** Development of e-Science/Cyber-infrastructure, the roles of computation in knowledge discovery, Virtual Observatory, large digital sky surveys and software systems, exploration of data parameter spaces, advanced data-mining and exploration techniques. Extragalactic astronomy, cosmology, galaxy formation, fundamental properties of galaxies, γ -ray bursts, quasars, radio galaxies, gravitational lenses, globular star clusters, early structure evolution, cosmological tests, the nature of dark energy.
- Current Professional Functions:**
Spitzer Science Center Oversight Committee, 2011 – present
Virtual Astronomical Observatory (VAO) Science Advisory Council, 2010 – present
- Previous:** CELT/TMT Site Selection Working Group, 1999 – 2008; Co-chair, 2000 – 2008. National Virtual Observatory (NVO) Science Steering Committee, 2004 – 2009. Keck Observatory Science Steering Committee, 1990 – 1995, 2000 – 2002; Co-Chair, 2003 – 2005. California Extremely Large Telescope (CELT) Steering Committee, 2000 – 2003. NVO Science Definition Team, Chairman, 2001 – 2002. NVO Interim Steering Committee,

1999 - 2001. NASA Michelson Science Center Oversight Committee, 2001 – 2004. Palomar Observatory Council, 1993 – 1995, 1998 – 2002. Keck Obs. Archive Advisory Group, 2003 – 2004. Keck LRIS-B Instrument Science Team, 1994 – 2000. Keck NIRC-2 Instrument Science Team, 1994 – 2000. Keck Obs. Adaptive Optics (AO) Working Group, and AO Science Team 1992 – 1994. Keck Obs. Data Acquisition Working Group, 1991 – 1994. Keck Obs. Low Resolution Imaging Spectrograph (LRIS) Team, 1988 – 1994. NASA/IPAC National Extragalactic Data Base (NED), Advisory Committee, 1989 – 1991. NASA Space Interferometer (SIM) Science Working Group, 1994 – 1995. Faculty Manager, Caltech Astronomy Data Processing Facility, 1989 – 1991. Numerous other Departmental, Institute, and professional advisory and administrative functions. Organizing committees and chairmanships for many scientific conferences.

Academic Advising: sponsorship of 15 postdoctoral scholars, including several prize fellows, advising or co-advising of 12 graduate students, non-thesis research advising of about 15 other graduate students and about 70 undergraduate students.

Publications: Complete list is available at http://www.astro.caltech.edu/~george/sgd_pubs.html

As of the mid-2011, Djorgovski's publication list includes ~ 250 papers in refereed journals, > 70 invited reviews, > 150 contributed conference papers, ~ 200 abstracts, ~ 350 circulars, ~ 40 other miscellaneous publications, editing of 3 conference volumes, and various on-line databases and archives.

Five selected significant publications:

- Djorgovski, S., & King, I.R. 1984, "Surface Photometry in Cores of Globular Clusters", *Astrophys. J. Letters* **277**, L49 [discovery of core collapse in globular clusters]
- Djorgovski, S., et al. 1985, "Discovery of a Probable Galaxy with a Redshift of 3.218", *Astrophys. J. Letters* **299**, L1 [the first galaxy discovered at $z > 3$]
- Djorgovski, S., & Davis, M. 1987, "Fundamental Properties of Elliptical Galaxies", *Astrophys. J.* **313**, 59 [discovery of the fundamental plane correlations]
- Metzger, M.R., Djorgovski, S.G., et al. 1997, "Spectroscopic Study of the Optical Counterpart to the γ -Ray Burst of 8 May 1997, *Nature* **387**, 878 [the first GRB redshift]
- Djorgovski, S.G., et al. 2001, "On the Threshold of the Reionization Epoch", *Astrophys. J. Letters* **560**, L5 [the first evidence for approach to reionization]

Five other selected, relatively recent publications:

- Djorgovski, S.G., & Williams, R. 2005, "Virtual Observatory: From Concept to Implementation", *A.S.P. Conf. Ser.* **345**, 517
- Djorgovski, S.G. 2005, "Virtual Astronomy, Information Technology, and the New Scientific Methodology", *IEEE Proc. of CAMP05: Computer Architectures for Machine Perception*, eds. V. Di Gesu & D. Tegolo, p. 125
- Djorgovski, S.G., et al. 2006, "Some Pattern Recognition Challenges in Data-Intensive Astronomy", *Proc. 18th International Conference on Pattern Recognition (ICPR 2006)*, Vol. 1, eds. Y.Y. Tang et al., IEEE Press, p. 856
- Djorgovski, S.G., & Gurzadyan, V.G. 2007, "Dark Energy From Vacuum Fluctuations", in *Proc. Dark Matter 2006 Conf.*, eds. D. Cline et al., *Nucl. Phys. B Proc. Suppl.*, **173**, 6.
- Djorgovski, S.G., et al. 2008, "The Origins and the Early Evolution of Quasars and Supermassive Black Holes", in *Proc. XI Marcel Grossman mtg.*, eds. H. Kleinert et al., p. 340. Singapore: World Scientific

Selected Scientific Achievements:

- Pioneering studies of radio galaxies beyond $z > 1$, including detections of strong evolutionary effects, alignment effects, and K-band Hubble diagram for radio galaxies (with H. Spinrad, P. McCarthy, and others)
- Discovery of collapsed cores in globular clusters, and the first census thereof (with I.R. King)
- Discovery of the first known galaxy at $z > 3$, and the pioneering use of Ly α narrow-band imaging technique for discoveries of high- z galaxies (various collaborators)
- Discovery of the Fundamental Plane correlations for elliptical galaxies (with M. Davis; independently found by S. Faber, A. Dressler, et al.)
- Discoveries of the first examples of binary quasars, and several gravitational lenses (various collaborators)
- Discovery of the color and population gradients in globular clusters (with G. Piotto, and others)
- Discovery of a couple of previously unknown globular clusters
- Systematic studies of globular cluster properties in our Galaxy, M31, and other Local Group galaxies (with G. Meylan and others)
- Discovery of obscured quasar nuclei in powerful radio galaxies (with N. Weir and others)
- Systematic studies of elliptical galaxies, fundamental plane correlations, and their use to probe evolution of ellipticals (with R. de Carvalho, M. Pahre, and others)
- Pioneering near-IR searches for protogalaxies (with S. Beckwith, D. Thompson, and M. Pahre)
- The deepest searches for Ly α protogalaxies in the pre-Keck era (with D. Thompson and others)
- The first deep K-band galaxy counts with the Keck telescope (with B.T. Soifer, and others)
- Discovery of the Fundamental Plane correlations for globular clusters
- Pioneering applications of machine learning and artificial intelligence technologies for processing and analysis of massive digital sky surveys (with N. Weir, U. Fayyad, and others)
- Discoveries of large numbers of QSOs at $z > 4$ in DPOSS, and early measurements of their luminosity function (with J. Kennefick, R. de Carvalho, and others)
- The first application of the Tolman test for universal expansion (w. M.Pahre and R.de Carvalho)
- Discovery of the first galaxy counterpart of a high- z DLA system (with M. Pahre and others)
- The first GRB redshift, demonstrating the cosmological nature of GRBs (with M. Metzger, S.R. Kulkarni, and others)
- Pioneering studies of GRB afterglows and host galaxies, incl. connections with massive star formation, supernovae, and beaming (with S.R. Kulkarni, D. Frail, J. Bloom, and many others)
- Discovery of multimodality and other peculiarities in horizontal branch populations in globular clusters (with C. Sosin, G. Piotto, I.R. King, and others)
- Completion of largest, objectively compiled catalogs of clusters of galaxies and compact groups from DPOSS (with R. Gal, R. de Carvalho, and others)
- Early evidence of the approach to the Reionization Era (with several collaborators)
- Evidence for a strong clustering bias of QSOs and galaxies at $z > 4$ (with various collaborators)
- Discovery of the first known physical triple quasar (with F. Courbin and others)
- Discovery of the most luminous supernovae known (with A. Drake and others)
- Discovery of the first examples of gravitational lensing by a quasar host galaxy (with F. Courbin, G. Meylan, and others)
- Early development of the Virtual Observatory concept (with A. Szalay and many others)
- Pioneering exploration of the time domain with digital synoptic sky surveys (with A. Mahabal, A. Drake, and others)
- Pioneering uses of Virtual Worlds as a scientific and scholarly platform (with P. Hut and others)
- Fostering the development of the emerging field of Astroinformatics (with many others)