

**MICHAEL M. SHARA**  
CURATOR AND PROFESSOR  
DEPARTMENT OF ASTROPHYSICS

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**HIGHEST DEGREE EARNED**

Ph.D.

**AREA OF SPECIALIZATION**

Novae, supernovae, observations and simulations of dense star clusters

**EDUCATIONAL EXPERIENCE**

Ph.D. in Astrophysics, Tel-Aviv University, 1973-1977

M.Sc. in Astronomy, University of Toronto, 1971-1973

B.Sc. in Physics, University of Toronto, 1968-1971

Mathematics, McGill University, 1966-1968

**PREVIOUS EXPERIENCE IN DOCTORAL EDUCATION**

**FACULTY APPOINTMENTS**

Adjunct Professor, Department of Astronomy, Columbia University, 1999-present

Visiting Professor, Department of Astronomy, Columbia University, 1993

**COURSES TAUGHT**

Stellar Structure and Evolution, Graduate Course, Columbia University, January-May  
2005

**GRADUATE ADVISEES**

Graham Kanarek, Columbia University, 2009-present

Kathryn Stanonik, Columbia University, 2007-2009

Jackie Faherty, SUNY-Stony Brook, 2006-2009

James D. Neill, Ph.D., Columbia University, 2001-2004

**RESEARCH GRANT SUPPORT**

**FEDERAL SOURCES**

Jet Propulsion Lab, "Mid-Infrared Spectroscopy of the Coldest Known Brown Dwarf  
2MASS 0415-0935: Physical Diagnostics and Spectral Modeling" (co-PI with A.  
Burgasser), November 17, 2004 – July 30, 2007

Jet Propulsion Lab, "The Mid-Infrared Spectrophotometric Properties of a Complete  
Sample of the Nearest L Dwarfs" (Co-PI with K. Cruz), September 15, 2004 –  
July 31, 2007

Jet Propulsion Lab, "Imaging Exoplanets, Brown Dwarfs and Disks with Precision  
Coronagraphy" (co-PI with A. Digby), September 10, 2003 – September 9, 2006

National Aeronautics and Space Administration, "CV Shells Seen by GALEX," March  
15, 2005 – March 14, 2006

- National Aeronautics and Space Administration, “Spitzer Fellowship: Old and Cold: Identifying and Characterizing the Coldest Stellar and Substellar Halo Subdwarfs” (Co-PI with A. Burgasser, October 1, 2004 – September 30, 2005)
- National Science Foundation, “Development of a Precision Stellar Coronagraph for Imaging Exoplanets, Brown Dwarfs and Disks” (Co-PI with B. Oppenheimer), September 1, 2002 – August 31, 2006
- National Science Foundation, “NSF/AFOSR Astronomy: The Lyot Project: Optimized, Diffraction-Limited Coronagraphy” (Co-PI with B. Oppenheimer), September 15, 2003 – August 31, 2006
- Space Telescope Science Institute, “Pixel Microlensing of M87,” November 1, 2000 – September 30, 2004 (Supplement, October 1, 2001 – September 30, 2004)
- Space Telescope Science Institute, “Constraining the Age of the Oldest Stars from the White Dwarf Cooling Sequence in M4,” February 1, 2001 – January 31, 2005
- Space Telescope Science Institute, “The Deepest Far UV Imaging Survey of Globular Clusters: NGC 6752 and NGC 6397,” April 1, 2001 – March 31, 2004
- Space Telescope Science Institute, “Uncovering the CV population in M15: a deep, time-resolved, far-UV survey of the cluster core,” October 1, 2003 – March 31, 2006
- Space Telescope Science Institute, “A Deep Far-UV Search for the Interacting Binary Population in M80,” September 1, 2004 – August 31, 2006
- Space Telescope Science Institute, “The White Dwarf Cooling Age and Dynamical History of the Metal-Poor Globular Cluster NGC 6397,” April 1, 2005 – March 31, 2007
- Space Telescope Science Institute, “Resolving a Binary System that Straddles the L/T Transition” (Co-PI with K. Cruz and A. Burgasser), July 1, 2004 – June 30, 2006

#### NON-FEDERAL SOURCES

- Hilary Lipsitz, Private Donor, Project: To support research on and building of a coronagraph, 2003-2005

#### **RECENT ARTICLES IN REFEREED JOURNALS (2006-2011)**

- O. Yaron, D. Prialnik, A. Kovetz and M.M. Shara Extreme Horizontal Branch Stars: How Blue Can They Get? *Monthly Notices of the Royal Astronomical Society* (submitted) 2011
- M.M. Shara, O. Yaron, D. Prialnik and A. Kovetz. An Extended Grid of Nova Models. III. Very Luminous, Red Novae. *Astrophysical Journal* 725, 831-841(2010)
- M.M. Shara, D. Zurek, D. Prialnik, O. Yaron and A. Kovetz. The Red Variable in M31 - A Blue Candidate in Quiescence. *Astrophysical Journal* 725, 824-830 (2010)
- M.M. Shara, O. Yaron, D. Prialnik and A. Kovetz. Non-equipartition of Energy, the Masses of Nova Ejecta and Type Ia Supernovae. *Astrophysical Journal Letters* 712, L143-L147
- B.E. Schaefer, A. Pagnotta, and M.M. Shara. The Nova Shell and Evolution of the Recurrent Nova T Pyxidis. *Astrophysical Journal* 708, 381-402 (2010)
- J.K. Faherty, A.J. Burgasser, A.A. West, J.J. Bochanski, K. Cruz, M.M. Shara and F.M. Walter. The Brown Dwarf Kinematics Project. II. Details on Nine Wide Common Proper Motion Very Low Mass Companions to Nearby Stars. *Astronomical Journal* 139, 176-194 (2009)

- N.M. Law, S.R. Kulkarni et al (including M. Shara). The Palomar Transient Factory: System Overview, Performance, and First Results. Publications of the Astronomical Society of the Pacific 121, 1395-1408 (2009)
- A. Rau, S. Kulkarni et al (including M. Shara). Exploring the Optical Transient Sky with the Palomar Transient Factory. Publications of the Astronomical Society of the Pacific 121, 1334-1351 (2009)
- M. Teyssier, K. Johnston, and M. Shara. Wandering Stars: an Origin of Escaped Populations. Astrophysical Journal Letters, 707, L22-L26 (2009)
- M.M. Shara, A.F.J. Moffat, J. Gerke, D.R. Zurek, K. Stanonyk, R. Doyon, E. Artigau, L. Drissen, A. Villar-Sbaffi. A Near-Infrared Survey of the Galactic Plane for Wolf-Rayet Stars I. Methods and First Results: 41 New WR Stars. Astronomical Journal 138, 402-420 (2009)
- S. Lepine, J. Thorstensen, M.M. Shara & R. M. Rich. New Neighbors: Parallaxes of 18 Nearby Stars Selected from the LSPM-North Catalog. Astronomical Journal 137, 4109-4117 (2009)
- A. Dieball, C. Knigge, T.J. Maccarone, K.S. Long, D.C. Hannikainen, D. Zurek and M. Shara. Blue Hook Stars in Globular Clusters. Monthly Notices of the Royal Astronomical Society 394, L56-L60 (2009)
- J.K. Faherty, A.J. Burgasser, K.L. Cruz, M.M. Shara, F.M. Walter, and C.R. Gelino The Brown Dwarf Kinematics Project I. Proper Motions and Tangential Velocities for a Large Sample of Late-Type M, L, and T Dwarfs. Astronomical Journal 137, 1-18 (2009)
- J.R. Thorstensen, S. Lepine, and M.M. Shara. Parallax and Distance Estimates for Twelve Cataclysmic Variable Stars. Astronomical Journal 136, 2107-2114 (2008)
- M. Servillat, A. Dieball, N.A. Webb, C. Knigge, R. Cornelisse, D. Barret, K.S. Long, M.M. Shara, D.R. Zurek. Combined Chandra, XMM-Newton and Hubble Space Telescope observations of the Galactic Globular Cluster NGC 2808. Astronomy and Astrophysics 490, 641-654 (2008)
- C. Knigge, A. Dieball, J. Maiz-Apellaniz, K. Long, D.R. Zurek and M.M. Shara. Stellar Exotica in 47 Tucanae. Astrophysical Journal 683, 1006-1030 (2008)
- H.B. Richer, A. Dotter, J. Hurley, J. Anderson, S. Davis, G. G. Fahlman, B.M.S. Hansen, J. Kalirai, I. King, N. Paust, R.M. Rich and M.M. Shara. Deep ACS Imaging in the Globular Cluster NGC 6397: The Cluster Color Magnitude Diagram and Luminosity Function. Astronomical Journal 135, 2141-2154 (2008)
- J.R. Hurley, M.M. Shara, H. B. Richer, I.R. King, S. Davis, J. Kalirai, B.M.S. Hansen, A. Dotter, J. Anderson, G.G. Fahlman, R.M. Rich. Deep ACS Imaging in the Globular Cluster NGC 6397: Dynamical Models. Astrophysical Journal 135, 2129-2140 (2008)
- B. Hansen, J. Anderson, J. Brewer, B. Chaboyer, A. Dotter, G. Fahlman, J., Hurley, I. King, D. Reitzel, H. Richer, R. M. Rich, M. Shara and P. Stetson. The White Dwarf Cooling Sequence of NGC 6397. Astrophysical Journal 671, 380 (2007)
- A. Dieball, C. Knigge, D. Zurek, M. Shara, K. Long, P. Charles, and D. Hannikainen. Unveiling the Core of the Globular Cluster M15 in the Ultraviolet. Astronomical Journal 670, 379 (2007)

- S. Lepine, R. M. Rich, M. Shara, K. Cruz and A. Skemer. An Astrometric Companion to the Nearby Metal-Poor, Low-Mass Star LHS 1589. Submitted to *Astrophysical Journal* (2007)
- J. Hurley, S. Aarseth and M. Shara. The Core Binary Fractions of Star Clusters from Kalirai, J., J. Anderson, H. Richer, I. King, J. Brewer, G. Carraro, S. Davis, G. Fahlman, B. Hansen, J. Hurley, S. Lepine, D. Reitzel, R. M. Rich, M. Shara, and P. Stetson. 2007. The space motion of the nearby globular cluster NGC 6397. *Astrophysical Journal Letters* 657: L93-L96.
- Shara, M., C. Martin, M. Seibert, R. M. Rich, S. Salim, D. Reitzel, D. Schiminovich, C. Delyannis, A. Sarrazine, N. Brosch, S. Lepine, D. Zurek, O. De Marco, and G. Jacoby. 2007. An ancient Nova shell surrounds the dwarf Nova Z Camelopardalis. *Nature* 446: 159-162.
- Deetlefs M., K. Seddon and M. Shara. 2006. Neoteric optical media for refractive index determination of gems and minerals. *New Journal of Chemistry* 30: 317-326.
- Deetlefs M., K. Seddon and M. Shara. 2006. Predicting physical properties of ionic liquids. *Physical Chemistry Chemical Physics* 8: 642-649.
- Digby, A., S. Hinkley, B. Oppenheimer, A. Sivaramakrishnan, J. Lloyd, M. Perrin, L. Roberts, R. Soummer, D. Brenner, R. Makidon, M. Shara, J. Graham, P. Kalas, J. Kuhn, and L. Newburgh. 2006. The challenges of coronagraphic astrometry. *Astrophysical Journal* 650: 484-496.
- Downes, R., R. Webbink, M. Shara, H. Ritter, U. Kolb, and H. Duerbeck. 2006. A catalog and atlas of cataclysmic variables: The final edition. *Journal of Astronomical Data* 11: 2-10.
- Knigge, C., R. Gilliland, A. Dieball, D. Zurek, M. Shara and K. Long. 2006. A blue straggler binary with three progenitors in the core of a globular cluster?. *Astrophysical Journal* 641: 281-287.
- Richer, H., J. Anderson, J. Brewer, S. Davis, G. Fahlman, B. Hansen, J. Hurley, J. Kalirai, I. King, D. Reitzel, R. M. Rich, M. Shara, and P. Stetson. 2006. Probing the faintest stars in a globular star cluster with the Hubble Space Telescope. *Science* 313: 936-940.
- Shara, M. M. 2006. Tramp classical novae as tracers of intergalactic stars. *Astronomical Journal* 131: 2980-2985.
- Shara M. and J. Hurley. 2006. Dynamical effects dominate the evolution of cataclysmic variables in dense star clusters. *Astrophysical Journal* 646: 464-473.
- Wallace, D., D. R. Gies, A. Moffat, M. Shara and V. Niemela. 2005. Hubble Space Telescope imaging of the WR 38/WR 38a cluster. *Astronomical Journal* 130: 126-133.
- Thorstensen, J., S. Lepine and M. Shara. 2006. The unusual cataclysmic binary star RBS 0490 and the space density of cataclysmic variables. *Publications of the Astronomical Society of the Pacific* 118: 1238-1244.