

Dr. Bryan E. Penprase

Vice President for Sponsored Research and External Academic Relations
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Education

- Ph. D. - University of Chicago, Astronomy and Astrophysics, 1992
- M.S. - Stanford University, Applied Physics, 1985
- B.S. - Stanford University, Physics, 1985

Administrative Positions

2020-present – Vice President for Sponsored Research and External Academic Relations, Soka University of America

As Vice President, I am responsible for managing university partnerships with UC Irvine, CGU, and peer liberal arts institutions, managing the sponsored research office and developing relations with private foundations, and working to advance SUA's mission of fostering global citizenship through visiting international scholars, educational conferences and symposia and presentations at external academic conferences. I also have developed the new Pacific Alliance of Liberal Arts (PALAC), which links top liberal arts institutions around the Pacific region and includes 9 institutions in China, Vietnam, Canada, Hong Kong and the US.

2017-2020 – Dean of Faculty, Soka University of America

As Dean of Faculty, I had administrative responsibility for undergraduate education and research functions with oversight of over 70 faculty. Specific projects included developing a new Life Sciences concentration, including curriculum and hiring plan, planning and organizing an international conference on Globalized Liberal Arts, developing new faculty development programs, incentivizing faculty research, developing new programs to advance diversity and inclusion, and building partnerships with liberal arts colleges and universities, including an MOU with Claremont Graduate University for accelerated MA degrees, and new Fulbright Fellowship advising and internship programs.

2015-2017 – Director, Centre for Teaching and Learning, Yale-NUS College, Singapore

Founded and Directed the Centre for Teaching and Learning, developed new faculty workshops, teaching innovation grants, and conducted research on teaching and learning. Advised leadership on teaching and learning issues and played a lead role in faculty development and educational research at Yale-NUS. Advised the Yale-NUS President and Dean on initiatives for Global liberal arts, including co-organizing campus opening symposium in 2015, Global liberal arts meeting at Yale University in 2016, and Liberal Arts in India meetings in 2015 and 2016. Helped develop, teach and co-direct the Foundations of Science Course at Yale-NUS College.

2013-2014 - co-Director, Liberal Arts Consortium for Online Learning (LACOL)

As founding co-Director, reported to the Presidents of Amherst, Claremont McKenna, Carleton, Swarthmore, Haverford, Pomona, Vassar and Williams Colleges, and developed strategic priorities

and organized a conference on online learning at Pomona College. The LACOL Consortium included nearly 1000 faculty from all eight colleges, and budgets pooled from the President's office in each institution.

2012-2013 - American Council on Education (ACE) Fellow, Yale University

Reported to Yale's President Peter Salovey and developed reports and white papers on topics ranging from online learning, teaching and learning centers, diversity and social mobility in higher education, math teaching, liberal arts in India, and co-authored the blueprint of the Yale-NUS College curriculum. Served on committee with Yale faculty to develop the Freshman Scholars at Yale program for incoming first-generation students and students from underrepresented groups in academia.

2007-2011 - Chair, Physics and Astronomy, Pomona College

Led a department of 8 faculty, and four full time staff, with multiple shops and off campus facilities, and managed capital improvements and operations. Led initial planning of the new Physics, Math and Astronomy building, as well as directed major refurbishments of the Observatory and Planetarium. Expanded the department's faculty and student majors and revised the Physics curriculum to include more emphasis on inclusive pedagogy and diverse student outcomes.

1993-2016 - Director, Frank P. Brackett Observatory

Developed collaborations and joint research programs with NASA's JPL, Caltech and the Carnegie Observatories, and provided substantial research capabilities to Pomona College in Astronomy through external funding from the Fletcher Jones Foundation, NASA, JPL, and NSF, resulting in major upgrades of the 1-meter telescope for remote operations and development of the astronomical computing initiative, as well as international research collaborations centered at Caltech.

Academic Positions

2023-present - Visiting Scholar, Harvard Graduate School of Education

2022-present - Visiting Scholar, UC Berkeley Center for Studies in Higher Education

2020-present - Vice President for Sponsored Research and External Academic Relations and Professor of
Physics and Astronomy, Soka University of America

2017-2020 - Dean of Faculty and Professor of Physics and Astronomy, Soka University of America

2016-2019 - Research Professor of Astronomy, Pomona College

2016-2017 - Visiting Associate, California Institute of Technology

2014-2017 - Professor of Science, Yale-NUS College/NUS Singapore

2008-2016 - Frank P Brackett Professor of Astronomy, Pomona College

2007-2012 - Visiting Associate, California Institute of Technology

2005-2006 - Downing College Visiting Scholar, Cambridge University, UK

2000-2007 - Associate Professor of Physics and Astronomy, Pomona College

1993-1999 - Assistant Professor of Physics and Astronomy, Pomona College

1992-1993 - National Research Council, Postdoctoral Fellow, California Institute of Technology

Major Research Grants and Awards

- John Stauffer Charitable Trust, 2021 – Summer Research Program in Chemistry and Biochemistry, Grant to Soka University of America, **\$1,000,000**.
- Sahn Foundation 2019 – “Building a Digital Creativity Space” - M. Golden, B. Penprase, **\$100,000**.
- Teagle Foundation, 2015 - "*Globalizing the Liberal Arts*" - B. Penprase and C. Bailyn, Co-PIs, **\$50,000**.
- NSF PIRE 2015 - "*GROWTH - The Global Relay of Observatories for Watching Transients Happen*," M. Kasliwal, PI, (Caltech), with co-I's T. Prince (Caltech), L. Yan (Caltech); with B. Penprase, R. Quimby (SDSU), P. Wozniak (LANL); S. Vogel (U. Maryland), and D. Kaplan (U. Wilwaukee). **\$4,500,000**
- NSF 2014 - "*The Zwicky Transient Facility*," S. Kulkarni, PI, (Caltech) with Co-PI's T. Prince, B. Penprase, R. Dekany, and G. Helou, **\$8,980,000**
- Fletcher Jones Foundation 2013 - "Digital Immersive Theatre," M. Ebert, B. Penprase, P. Choi, and D. Tanenbaum, **\$1,000,000**.
- NSF MRI 2010 - "*CCAO-Cam: A Remote-Access, Dual-Band (Optical/NIR) Adaptive Optics System for the Table Mountain 1-meter telescope*," P. Choi, PI; with R. Erik Spjut (HMC), S. Severson (SSU), and B. Penprase, **\$637,000**
- Fletcher Jones Foundation 2001 - "*Astronomical Computing Initiative at Pomona College*", B. Penprase (PI), **\$567,000**.

Notable Projects Education and Leadership

- Visiting Scholar, Harvard Graduate School of Education (2023-present). As a visiting scholar, will be helping to teach graduate courses on higher education and researching for a new book on the future of universities.
- Visiting Scholar, UC Berkeley Center for Studies in Higher Education (2022-present). Working on a new project studying creativity in STEM fields, and how academic cultures can foster excellence and creativity among students and faculty.
- Co-Founder of the Pacific Alliance of Liberal Arts Colleges (PALAC), that links nine top liberal arts institutions in five countries, including Pomona College, Soka University of America, University of Puget Sound, NYU Shanghai, Duke Kunshan University, and Fulbright University Vietnam.
- Development of Soka University of America Life Sciences Concentration (2017-2020; developed science advisory board, led curriculum design and hired 5 new tenure-track STEM faculty).

- Development of Sponsored Research Office at Soka University of America (2020-present; in first year was responsible for developing \$2-million endowment for chemistry research and helped SUA receive its first NSF grant).
- Development of Faculty Diversity Recruitment and Enhancement Programs at Soka University (2017-2020; including redesigning training for search committee and workshops on diversity and equity in hiring).
- Liberal Arts Consortium for Online Learning (LACOL) (2014; inaugural co-Director; worked with Presidents of Carleton and Pomona College and linked them with 6 other top liberal arts institutions to study online learning in liberal arts.
- Liberal Arts in India project (2013-2017; worked with Pomona, Yale, Yale-NUS College)
- Curriculum Design for Yale-NUS College (2012-2017; was co-author of Curriculum Report and architect of much of the Science Curriculum)
- Inaugural Director for Yale-NUS Center for Teaching and Learning (2014-2017; designed faculty workshops, directed research on teaching and learning and created programs for enhancing teaching).
- Director of the Caltech ZTF undergraduate institute (2014-2019; this NSF-funded initiative enabled a group of 10-20 undergraduate students to learn Python programming and astronomy research techniques during the summer at Caltech).
- American Council of Education Fellow at Yale University working with Yale's President Peter Salovey and in the Yale Provost office (2012-13; roles included developing a new Freshman Scholars at Yale program for under-represented minorities and studying STEM Education at IVY+ universities, Centers for Teaching and Learning and Online Learning).

Publications

Books and Book Chapters:

Penprase, B.E., 2023, *Models of Time and Space from Astrophysics and World Cultures – the Foundations of Astrophysical Reality from Across the Centuries*, Springer Inc,

Penprase, B.E., and Pickus, N., 2023, *The New Global Universities: Reinventing Education in the 21st Century*, Princeton University Press, Princeton, NJ .

Penprase, B.E., and Douglass, J., 2021, "Nationalism Versus Globalism – Universities in Hong Kong and Singapore," chapter in *Neo-Nationalism and Universities: Global Perspectives on Politics and Policy and the Future of Higher Education*, JHU Press, to appear in September 2021.

Penprase, B.E., 2020, *STEM Education for the 21st Century: How Active Learning, Online Technologies and Research Have Transformed STEM Education*, Springer, Inc., Dordrecht, Netherlands.

Penprase, B.E., 2020, "Educational Strategies and Challenges for 4IR and Beyond," to appear in *Education and Jobs of the Future: Developing Qualified Human Capital to Secure the UAE's Progress*, Emirates Center for Strategic Studies and Research Publication.

Penprase, B.E., 2018, "The Fourth Industrial Revolution and Higher Education," chapter in Gleason, N. (eds), *Higher Education in the Era of the Fourth Industrial Revolution*, Palgrave Macmillan, Singapore.

Penprase, B.E., 2017, "Innovation in Undergraduate Education: The Case of the National University of Singapore," chapter in *Envisioning the Asian New Flagship University - Its Past and Vital Future*, Douglas, J., and Hawkins, J. (eds), Berkeley Public Policy Press – UC Berkeley Center for Studies in Higher Education.

Penprase, B.E., 2017, "Yale-NUS College," chapter in *Envisioning the Asian New Flagship University - Its Past and Vital Future*, Douglas, J., and Hawkins, J. (eds), Berkeley Public Policy Press – UC Berkeley Center for Studies in Higher Education.

Penprase, B.E., 2017, *The Power of Stars – How Celestial Observations Have Shaped Civilization (second edition)*, published by Springer, Inc.

Penprase, B.E., 2016, "The Zwicky Transient Facility," article in AccessScience McGraw-Hill Education Encyclopedia of Science & Technology.

Penprase, B.E., 2016, "New liberal arts and science institutions in India and Singapore – the role of STEM education," contributed article to be published in *The Liberal Arts and Science Education Dialogue across Continents: Experiences and Perspectives from the USA, Europe, and Asia*, Palgrave Macmillan.

Penprase, B.E., 2016 "Calendars and Timekeeping Around the World" an entry in the *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, H. Selin, editor, Springer Verlag, NY.

Garsten, B., Patke, R., Bailyn, C., Jacobs, J., Chuan, K., and **Penprase, B.**, 2013, "Yale-NUS College - A New Community of Learning" – Yale-NUS Curriculum blueprint booklet.

Selected Publications in Refereed Journals

(undergraduate student authors indicated with an asterisk):

Penprase, B., and Schneider, T., 2023, "Strengthening the Liberal Arts Along the Pacific Rim: The Pacific Alliance of Liberal Arts Colleges (PALAC)," Research and Occasional Paper Series, UC Berkeley: Center for Studies in Higher Education.

Penprase, B., 2021, "Global Liberal Arts and New Institutions for 21st Century Higher Education," *Higher Education Forum*, 18, 157-172.

Bolin, B., ... **Penprase, B.**, with 52 co-authors, 2020, "Characterization of the Nucleus, Morphology, and Activity of Interstellar Comet 2I/Borisov by Optical and Near-infrared

- GROWTH, Apache Point, IRTF, ZTF, and Keck Observations," *Astronomical Journal*, 160, 1.
- Wee, J.*, Blagorodnova, N., **Penprase, B.E.**, Facey, J.P.*, Morioka, T.*, Corbett, H., Barlow, B.N., Kupfer, T., Law, N.M., Ratzloff, J.K., Howard, W.S., Chavez, R.G., Glazier, A., Soto, A.V., and Horiuchi, T., 2020, "Multi-wavelength Photometry and Progenitor Analysis of the Nova V906 Car," *Astrophysical Journal*, 899, 162.
- Graham, M.J., ... **Penprase, B.**, with 115 co-authors, 2019, "The Zwicky Transient Facility: Science Objectives," *PASP*, 131, 8001.
- Perley, D.A., Mazzali, P.A., Yan, L., Cenko, B., ... **Penprase, B.**, ...and Wee, J.*, 2018, "The Fast, Luminous Ultraviolet Transient AT2018cow: Extreme Supernova, or Disruption of a Star by an Intermediate-Mass Black Hole?", *Monthly Notices of the Royal Astronomical Society*, 484, 1031.
- Wee, J.*, Chakraborty, N.*, Wang, J.*, and **Penprase, B.E.**, 2018, "Optical and Infrared Photometry of the nearby SN 2017cbv," *Astrophysical Journal*, 863, 90.
- Swiggum, J.K., McLaughlin, M., Lorimer, D., Kaplan, D.L., Lynch, R., Gentile, P., Rosen, R., Heatherly, S.A., Ray, P.S., Bogdanov, S., Barlow, B.N., Hegedus, R.J., Vasquez Soto, A., Clancy, P., Kondratiev, V.I., Stovall, K., Istrate, A., and **Penprase, B.**, 2017, "A Multi-Frequency Study of PSR J1400-1431," *Astrophysical Journal*, 847, 25.
- Marsh, F.M.*, Simon, A.A., **Penprase, B.E.**, Mettig, H., and Hahn, G. 2016, "The Relationship of Feature Drift Rate to Zonal Wind Velocity in the Northern Equatorial Belt of Jupiter I: Synoptic Scale Features," submitted to *Icarus*.
- Liu, C.T., .., **Penprase, B.E.**, and 18 co-authors, 2014, "Maximizing LSST's Scientific Return: Ensuring Participation from Smaller Institutions," white paper for astronomical community, arXiv:1410.2526.
- Phillips, M.M., Simon, Joshua D., Madore, Barry F.; **Penprase, B. E.**, (several co-authors omitted for space), 2013, "On the Source of the Dust Extinction in Type Ia Supernovae and the Discovery of Anomalously Strong Na I Absorption," *Astrophysical Journal*, **779**, 38
- Sternberg, A., Gal-Yam, A., Simon, J. D., Leonard, D. C., Quimby, R. M., Phillips, M. M., Morrell, N., Thompson, I. B., Ivans, I., Marshall, J. L., Filippenko, A. V., Marcy, G. W., Bloom, J. S., Patat, F., Foley, R. J., Yong, D., **Penprase, B. E.**, Beeler, D. J.*, Allende Prieto, C., Stringfellow, G. S., 2011, "Circumstellar Material in Type Ia Supernovae via Sodium Absorption Features," *Science*, **333**, 856.
- Thomas, C.A., Trilling, D.E., Emery, J.P., Mueller, M., Hora, J.L., Benner, L.A.M., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Fazio, G., Harris, A.W., Mainzer, A., Mommert, M., Morbidelli, A., **Penprase, B.**, Smith, H.A., Spahr, T.B., and Stansberry, J.A., 2011,

"ExploreNEOs. V. Average Albedo by Taxonomic Complex in the Near-Earth Asteroid Population," *Astronomical Journal*, 142, 85.

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- Trilling, D.E., Mueller, M., Hora, J.L., Harris, A.W., Bhattacharya, B., Bottke, W.F., Chesley, S., Delbo, M., Emery, J.P., Fazio, G., Mainzer, A., **Penprase, B.**, Smith, H.A., Spahr, T.B., Stansberry, J.A., and Thomas, C.A., 2010, "ExploreNEOs. I. Description and First Results from the Warm Spitzer Near-Earth Object Survey", *A.J.*, **140**, 770.
- Tanvir, N. R.; Fox, D. B.; Levan, A. J.; Berger, E.; ..., **Penprase, B. E.**, 2009, "A γ -ray burst at a redshift of $z \sim 8.2$ ", 2009, *Nature*, **461**, **Issue 7268**, pp. 1254-1257 (2009). (some co-authors removed for space)
- Gal-Yam, A., Nakar, E., Ofek, E.O., Cenko, S.B., Kulkarni, S.R., Soderberg, A.M., Harrison, F., Fox, D.B., Price, P.A., **Penprase, B.E.**, Frail, D.A., Atteia, J.L., Berger, E., Gladders, M., Mulchaey, J., 2008, "New Imaging and Spectroscopy of the Locations of Several Short-Hard Gamma-Ray Bursts", *Astrophysical Journal*, **686**, 408.
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- Britton, M., Velur, V., Law, N., Choi, P., and **Penprase, B.E.**, 2008, "CAMERA: a compact, automated, laser adaptive optics system for small aperture telescopes", *SPIE Proc. Vol 7015*, 701516.
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- Simon, J.D., Gal-Yam, A., **Penprase, B. E.**, Li, W., Quimby, R.M., Silverman, J.M., Allende Prieto, C., Wheeler, J.C., Fillipenko, A.V., Toro Martinez, I.*, Beeler, D.J.*, 2007,

“Constraints on Circumstellar Material Around the Type Ia Supernova 2007af”, *Astrophysical Journal (Letters)*, **671**, 25.

Berger, E., Fox, D.B., Price, P.A., Nakar, E., Gal-Yam, A., Holz, D.E., Schmidt, B.P., Cucchiara, A., Cenko, S.B., Kulkarni, S.R., Soderberg, A.M., Frail, D.A., **Penprase, B.E.**, Rau, A., Ofek, E., Burnell, S.J., Cameron, P.B., Cowie, L.L., Dopita, M.A., Hook, I., Peterson, B., Podsiadlowski, P., Roth, K.C., Rutledge, R.E., Sheppard, S.S., Songaila, A., 2007, “A New Population of High-Redshift Short-Duration Gamma Ray Bursts”, *Astrophysical Journal*, **664**, 1000-1010.

Price, P.A., Songaila, A., Cowie, L.L., Bell Burnell, J., Berger, E., Cucchiara, A., Fox, D.B., Hook, I., Kulkarni, S.R., **Penprase, B.**, Roth, K.C., and Schmidt, B., 2007, “Properties of a Gamma-Ray Burst Host Galaxy at $z \sim 5$ ”, *Astrophysical Journal (Letters)*, **663**, L57-60.

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Penprase, B.E., Berger, E., Fox, D.B., Kulkarni, S.R., Kadish, S.*, Kerber, L.*, Schaefer, B., and Reed, M., 2006, “Spectroscopy of GRB 051111 at $z=1.54948$: Kinematics and Elemental Abundances of the GRB environment and Host Galaxy”, *Ap. J.*, **646**, 358-368.

Berger, E., **Penprase, B.E.**, Fox, D.B., Kulkarni, S.R., Hill, G., Schaefer, B., and Reed, M., 2006, “Fine-Structure FeII and SiII Absorption in the Spectrum of GRB 051111: Implications for the the Burst Environment”, *submitted to the Astrophysical Journal Letters*. (astro-ph/0512280).

Berger, E., **Penprase, B.E.**, Cenko, S.B., Kulkarni, S.R., Fox, D.B., Steidel, C.C., and Reddy, N.A., 2005, “Spectroscopy of GRB 050505 at $z=4.275$: a $\log N(\text{HI})=22.1$ DLA Host Galaxy and the Nature of the Progenitor”, *Ap. J.*, **642**, 979-988.

Berger, E., Price, P.A., Cenko, S.B., Gal-Yam, A., Soderberg, A.N., Kasliwal, M., Leonard, D.C., Cameron, P.B., Frail, D.A., Kulkarni, S.R., Murphy, D.C., Krzeminskiy, W., Piran, T., Lee, B.L., Roth, K.C., Moon, D.-D., Fox, D.B., Harrison, F.A., Persson, S.E., Schmidt, B.P., **Penprase, B.E.**, Rich, J., Peterson, B.A., and Cowie, L.L. 2005, “The Afterglow and Elliptical Host Galaxy of the Short Gamma-Ray Burst GRB 050724”, *Nature*, **438 (7070)**, p. 988-990.

Fox, D.B., Frail, D.A., Price, P.A., Kulkarni, S.R., Berger, E., Piran, T., Soderberg, A.M., Cenko, S.B., Cameron, P.B., Gal-Yam, A., Kasliwal, M.M., Moon, D.-S., Harrison, F.A., Nakar, E., Schmidt, P., **Penprase, B.**, Chevalier, R.A., Kumar, P., Roth, K., Watson, D., Lee, B.L., Shectman, S., Phillips, M.M., Roth, M., McCarthy, P.J., Rauch, M., Cowie, L., Peterson, B.A., Rich, J., Kawai, N., Aoki, K., Kosugi, G., Totani, T., Park, H.-S., MacFadyen, A., and Hurley, K.C., 2005, “The afterglow of GRB050709 and the nature of the short-hard gamma-ray bursts”, *Nature*, **437**, 845-850.

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Selected Invited Talks and Media Appearances:

Asian University for Women, Chattogram, Bangladesh, January 21, 2023. Opening Plenary Speaker, appeared with a panel of speakers to open conference entitled "Can Universities Shape Society? Reflections, Ideas and Dreams."

Times Higher Education Liberal Arts Forum: Liberal Arts in Asian Higher Education, 23-24 June 2022, chaired session on interdisciplinary education in liberal arts with leaders from Japan, Hong Kong and UAE.

Times Higher Education Fourth MENA Summit, April 5, 2021, Abu Dhabi, UAE, chaired panel and presented on Interdisciplinary Teaching and Research in Higher Education.

American Association of Colleges and Universities, January 2020, Washington D.C., panelist in session on "*Liberal Arts Education Outside the United States – Innovations, Challenges and Opportunities.*"

Dialog between China and the West, January 3, 2020, Peking University, "*Global Liberal Arts and New Institutions for 21st Century Higher Education,*" invited talk to global liberal arts conference sponsored by Chen Yidan Foundation and Peking University.

Education and Jobs of the Future: Developing Qualified Human Capital to Secure the UAE's Progress, November 12, 2019, Abu Dhabi, "Educational Strategies and Challenges for 4IR and Beyond," invited talk to UAE's Emirates Center for Strategic Studies and Research.

NYU Abu Dhabi Colloquium, November 11, 2019, Abu Dhabi, "INTERDISCIPLINARY SCIENCE AND STEM IN THE GLOBAL LIBERAL ARTS," talk given to NYU Abu Dhabi faculty as part of a day-long meeting at NYU Abu Dhabi.

L.A. After Dark, November 16, 2019, University of Southern California, "Archaeoastronomy," talk for public symposium on LA after Dark - Night in the City, which explored scientific and cultural aspects of night in Los Angeles.

American Association of Colleges and Universities, January, 2018, Washington D.C., convener of session on "*Global Citizenship in 2018 - Linking Experience, Curriculum, and Student Development.*"

First Light Conference, Huntington Library, November 17, 2017, "Horizons: Conceptions of Cosmology from a Multi-Cultural Perspective," Presentation with Wendy Freedman exploring ancient and modern conceptions of the universe.

Astronomy 2017 – Singapore Art-Science Museum, "Chasing Cosmic Explosions" talk about ZTF and time-domain astronomy.

Benjamin Dean Lecture - California Academy of Sciences, December 9, 2013. Sold-out talk discussing "The Power of Stars" with new visualizations created with the CAS staff in their digital planetarium theatre.

"The Universe - Ancient Mysteries Solved" History Channel 2 (2014) - Appeared in two episodes - one on Stonehenge and one on the Egyptian Pyramids.

Griffith Observatory FOTO talk - Feb. 28, 2011. Lecture based on the "The Power of Stars" included over 200 people and was sold out.

Huntington Library Scholarly Books Lecture Series, June 20, 2011 - "Power of Stars" book talk with full house and over 200 attendees.