

Di Li

Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Dr.
MS 301-429
Pasadena, CA 91109

Phone: 001-818-3935126
FAX: 001-818-3932430
Email: dili@jpl.nasa.gov

Education

Ph.D.: May 2002, Cornell University, Ithaca, NY
Major: **Astrophysics**

Master: May 2000, Cornell University, Ithaca, NY
Major: **Astronomy and Astrophysics**

Bachelor of Science: July 1995, Beijing University, Beijing, China
Major: **Nuclear Physics**

Graduation Certificate: July 1995
Major: **Computer Science**

Employment

Title: Research Scientist

Jan 2007 – Now, Astrophysics and Space Sciences Section
Jet Propulsion Laboratory/California Institute of Technology
Prepare for the Herschel open time opportunities. Running projects on CARMA, SMA, Spitzer, VLA. Explore potential instrument for CCAT.

Title: National Research Council Resident Research Associate

May 2005 – Dec 2006, Astrophysics and Space Sciences Section
Jet Propulsion Laboratory/California Institute of Technology
Developing projects to study massive star formation using CSO, Spitzer, and SMA. Obtained funding to support these programs.

Title: Astronomer

February 2002 – May 2005, Optical and Infrared Division
Harvard-Smithsonian Center for Astrophysics
Work for the Submillimeter Wave Astronomical Satellite project and conduct independent research of ISM, Star Formation, and Astrochemistry.

Research Experience

Project Scientist, Five-hundred-meter Aperture Spherical radio Telescope (FAST), National Astronomical Observatory of China (NAOC)
Develop the science case, receiver design draft plan, and early science projects.

Software Development

Arecibo L band spectral calibration – in Class and IDL
SWAS sideband deconvolution – Class and C
High Voltage control software upgrade for the Beijing Electron-Positron Collider – Fortran

Collaboration

Member of the Arecibo L Band Focal Plane Array (ALFA) Consortium;
Co-PI of the consortium project—“*Survey of Molecular Gas to Study the Origin of Star Forming Clouds*”
CoI of the *CO*ordinated Molecular Probe Line Extinction Thermal Emission

Survey of Star Forming Regions (COMPLETE) survey project

Modeling

Large Velocity Gradient (LVG) models for modeling turbulent line profiles
Monte Carlo radiative transfer models for detailed cloud models with density and/or temperature gradients

Photon Dominated Regions model for modeling chemistry in outer layer of molecular clouds.

Review and Committee Services

Referee, Astrophysical Journal, 2005

Reviewer of Proposals, James Clark Maxwell Telescope, 2005

Research Assistant, National Astronomy and Ionosphere Center, 1999-2001

Teaching Experience

Invited Speaker, the 5th Joint Meeting of the Chinese Physicists Worldwide (OCPA5), in Taipei, June 2006

Invited Lecturer, Astronomy Department, Beijing University, November 2003 for a two week long series of lecture

Invited Speaker, Colloquium of Astronomy Department, Boston University, September 2002

Invited Speaker, Joint seminar, University of Bonn and Max-Planck-Institut für Radioastronomie, June 2001

Teaching Assistant, Department of Astronomy, Cornell University, 1995 – 1998

Taught sections for introductory astronomy courses

Supervised observing sessions in the Fierste Observatorium of Cornell

Supervised lab sessions in the physics lab.

Observing Experience

PI of approved Proposals

The Green Bank Telescope (GBT), NRAO

Very Large Array, NRAO

Arecibo 300-meter, NAIC, Cornell/NAIC

Effelsberg 100-meter, Max Planck Institute, Germany

Five College Radio Observatory, Univ. of Massachusetts

Submillimeter Wave Astronomy Satellite, Harvard-Smithsonian

The Submillimeter Array, Harvard-Smithsonian Center for Astrophysics

Swedish ESO Submillimeter Telescope, European Southern Observatory

Caltech Submillimeter Observatory, Caltech

Spitzer, NASA

Member of the American Astronomical Society, 1998 - Present

Member of the American Physical Society, 1999 - Present

Membership

Member of Student Advisory Committee of Engineering and Physical Sciences Library, Cornell University, 1998-1999

Awards/

Grants

Recipient of the Oversea Talent Program award, NAOC, 2008

CoI of Herschel Open Time Key Project (approved), ESA/NASA, 2008

• *"GOT CPlus: State of the Diffuse ISM: Galactic Observations of the Terahertz CII Line"*

CoI of Herschel Open Time Key Project (approved), ESA/NASA, 2008

• *"HOP: Herschel Oxygen Project"*

PI of Spitzer Cy3 Observing Proposal and Grant (approved), NASA, 2006

• *"MIPS SED Observations of Massive Quiescent Cores in Orion"*

CoI of Spitzer Cy3 Observing Proposal and Grant (approved), NASA 2006

• *"H2 Rotational Transition Emission From Molecular Cloud Edges: Tracing the Energy Input Affecting Cloud Structure and Evolution"*

Research Associateship Award, National Research Council, 2005

CoI of Spitzer Cy2 Observing Proposal (approved), NASA 2005

• *"Mapping the Structure of Dark Filaments in OMC 3 with the IRS"*

Outstanding Visiting Scholar, National Science Foundation of China, 2003

GBT Support Grant, National Radio Astronomy Observatory, 2003

• *"HI Survey of Nearby Star Forming Regions"* ,

Small Research Grant, American Astronomical Society, 2002

• *"HI Narrow Self-Absorption as a Zeeman Tracer"*

University Fellowship, Beijing University, 1992, reward for top 3% academic performance

GuangHua Scholarship, by GuangHua Foundation, 1992, in conjunction with the fellowship for excellence in overall school performance

Publications

Refereed Journals

Krco, M., Goldsmith, P.F., Brown, R.L., & Li, D. 2008, *"An Improved Technique for Measurement of Cold HI in Molecular Cloud Cores"*, ApJ ,689, 276

Velusamy, T., Peng, R., Li, D., Goldsmith, P.F., & Langer, W.D. 2008, *"Dichotomy in the Dynamical Status of Massive Cores in Orion"*, ApJL, 688, L87

Goldsmith, P., Heyer, M., Narayanan, G., Snell, R., Li, D. & Brunt, C., 2008, *"Large--Scale Structure of the Molecular Gas in Taurus Revealed by High Spatial Dynamic Range Spectral Line Mapping"*, ApJ 689, 276

Narayanan, G., Heyer, M., Brunt, C., Goldsmith, P., Snell, R. & Li, D. 2008, *"The Five College Radio Astronomy Observatory CO Mapping Survey of the Taurus Molecular Cloud"*, ApJS, 177, 341

Li, D., 2007, “*Observational Constraints for the early Phases of Star Formation*”, Modern Physics Letters A, invited brief review, in prep.

Li, D., Velusamy, T., Goldsmith, P.F. & Langer, W., 2007, “*Massive Quiescent Cores in Orion part II – Core Mass Function*”, ApJ, 655, 351

Goldsmith, P.F., **Li, D.** & Krco, M., 2006, “*P.F. Goldsmith, D. Li, M. Krco, “The transition from Atomic to Molecular Hydrogen in Interstellar Clouds: the 21cm Signature of the Evolution of Cold Atomic Hydrogen in Dense Cluods*”, ApJ 654, 273

Ridge, N., Di Francesco, J., Kirk, H., **Li, D.**, Goodman, A., Alves, J., Arce, H., Borkin, M., Caselli, P., Foster, J., Heyer, M., D. Johnstone, D. Kosslyn, M. Lombardi, J. Pineda, S. Schnee, M. Tafalla, 2006, “*The COMPLETE Survey of Star-Forming Regions: Phase I Data*”, AJ, 131, 2921

Goldsmith, P.F. & **Li, D.** 2005, *HI Narrow Self--Absorption in Dark Clouds: Correlations with Molecular Gas and Implications for Cloud Evolution and Star Formation*, ApJ, 622, 938

Zubko, V., **Li, D.**, Harwit, M & Lim, T. 2004, *Observations of Water Vapor Outflow from NML Cygnus*, ApJ, 610, 427

Li, D. & Goldsmith, P. F. 2003, *HI Narrow Self Absorption in Dark Clouds*, ApJ, 585, 823

Li, D., Goldsmith, P.F. & Menten, K. 2003, *Massive Quiescent Cores in Orion I. Temperature Structure*, ApJ, 587, 262

Darling, J., Goldsmith, P. F., **Li, D.** & Giovanelli, R. 2003, *A Search for 6.7 GHz Methanol Masers in OH Megamaser Galaxies at $0.11 < z < 0.27$* , AJ, 125, 1177

Goldsmith, P. F., **Li, D.**, Melnick, G. J., Bergin, E. A., Howe, J. E., Snell, R. L., Neufeld, D. A. & Harwit, M., 2002, *Tentative Detection of Molecular Oxygen in the Rho Ophiuchi Cloud*, ApJ, 576, 814

Li, D., Goldsmith, P.F. & Xie, T. 1999, *A New Method For Determining the Dust Temperature Distribution*, ApJ, 522, 897

Conference Papers

Li, D., Guan, X., Dai, Y., T., “*What is the True Slope of the Core Mass Function*”, 2007, American Astronomical Society Meeting 209, #198.03, Seattle, WA

Li, D., Goldsmith, P. F., Velusamy, T., Langer, W. D., “*Submillimeter Observation of Massive Quiscent Cores*”, 2006, American Astronomical Society Meeting 207, #184.14, Denver, CO

Li, D., Goldsmith, P.F., “*HI Narrow Self-Absorption and the Formation Time Scale of Molecular Clouds*”, in the Protostar and Planets V meeting, 2005, Kona, HI

Langer, W. Velusamy, T., **Li, D.**, Goldsmith, P. 2005, “*Submillimeter Survey of Massive Cores in Orion*”, in the Protostar and Planets V meeting, 2005, Kona, HI

Melnick, G., Bergin, E., Hollenbach, D., Kaufman, M.; **Li, D.**, Snell, R., “*Water Vapor in Molecular Clouds*”, IAU Symposium No., 231, Astrochemistry Throughout the Universe, 2005, Asilomar, CA

Kaufman, M., Hollenbach, D., Bergin, E.; Melnick, G., Snell, R., **Li, D.**, Walmsley, C. M., “*Water, O₂ and Ice in Translucent and Dense Molecular Clouds: PDR Models with Grain-Surface Chemistry and Photodesorption*”, IAU Symposium No. 231 Astrochemistry Throughout the Universe, 2005, Asilomar, CA

Li, D. 2004, *The Clump-Interclump Structure as Traced by CI*, “Observation Confront Theory” Conference, Arecibo, Puerto Rico

Velusamy, T. **Li, D.**, Goldsmith, P.F. & Langer, W.D. 2004, *Submillimeter Observations of Quiescent Pre-stellar Cores in Orion*, “Cores, Disks, Jets & Outflows in Low & High Mass Star Forming Environments: Observations, Theory and Simulations” Conference in Banff, Canada

Li, D., E. González –Alfonso & G. Melnick 2004, *The Inverse P-Cygni Water Profile of G333.1: Parsec-Scale Infalling Envelope*, American Astronomical Society Meeting, 204, 9903

Li, D., Melnick, G. & Goldsmith, P. F. 2002, *Large Scale Mapping of Rho Ophiuchi Cloud*, Conference Proceeding of the Astrochemistry and Star Formation Meeting in Waterloo, Canada

Li, D. & Melnick, G. 2002, *Submillimeter Wave Astronomy Satellite and Star Formation*, Conference Proceeding of the 6th Pacific Rim Stellar Physics Meeting in Xi’an, China

Li, D. & Goldsmith, P. F. 2001, *Massive Cold Cores in Orion*, American Astronomical Society Meeting, 197, 2801

Li, D. & Goldsmith, P.F. 2000, *HI Self-absorption and OH Observations of Dark Clouds*, NAIC Arecibo Newsletter, No. 29, American Astronomical Society Meeting, 197, 2801