

# CV of Anuj P. Sarma

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## Education

- 1994-2001      Ph.D. in Physics, University of Kentucky, Department of Physics and Astronomy (Ph.D. supervisor: Dr. Thomas H. Troland, thesis titled "An observational study of astronomical magnetic fields and their role in star formation")
- 1992-1994      M.Sc. (Physics), Indian Institute of Technology (IIT), Delhi, New Delhi, India
- 1988-1991      B.Sc. (major in Physics), Gauhati University, Guwahati, Assam, India

## Professional Experience

- 2004-present    Assistant Professor, Physics Department, DePaul University
- 2002-2004      Assistant Professor, Physics & Astronomy Department, Eastern Kentucky University
- 2001-2002      Postdoctoral Fellow, Astronomy Department & National Center for Supercomputing Applications (NCSA), University of Illinois at Urbana-Champaign
- 1997-2001      Research Assistant, Department of Physics & Astronomy, University of Kentucky
- 1994-1997      Teaching Assistant, Department of Physics & Astronomy, University of Kentucky
- 1993             Summer Student, Giant Meterwave Radio Telescope (GMRT), National Center for Radio Astrophysics, Pune, India

## Research Grants

### External Grants Funded:

- 2005-2008      PI, NASA-JPL grant "High Resolution IRS Mapping of the Star Forming region NGC 6334 A"
- 2004-2005      Consultant, NSF grant for T. H. Troland (University of Kentucky), "Observations of the Zeeman effect in H<sub>2</sub>O masers"
- 2003             PI, NSF-EPSCoR grant, "High angular resolution Zeeman observations of H<sub>2</sub>O masers,"

### Internal Grants Funded (at DePaul only):

- 2005             Undergraduate Research Assistant Program, DePaul University, "High Angular Resolution Radio Observations of Star Forming Regions, 75 hours of student support

## Membership in Professional Organizations

- Full Member, American Astronomical Society (AAS)
- Full Member, Sigma Xi
- Fellow, Royal Astronomical Society (RAS)
- Member, International Astronomical Union (IAU)

**Bibliography****Publications in refereed journals**

- [1] "Very Large Array H I Zeeman Observations of NGC 1275 (Perseus A)," Sarma, A. P., Momjian, E., Troland, T. H., & Crutcher, R. M. 2005, *Astronomical Journal*, 130, 2566
- [2] "The Kinematics, Physical Condition and Magnetic Field of the W3 IRS 5 region," Imai, H., & Sarma, A. P. 2005, *Astrophysics & Space Science*, 295, 71
- [3] "Magnetic Fields in Shocked Regions: Very Large Array Observations of H<sub>2</sub>O Masers," Sarma, A. P., Troland, T. H., Crutcher, R. M., & Roberts, D. A. 2002, *Astrophysical Journal*, 580, 928
- [4] "Gaussian Spectral Line Profiles of Astrophysical Masers," Watson, W. D., Sarma, A. P., & Singleton, M. S. 2002, *Astrophysical Journal (Letters)*, 570, L37
- [5] "VLA H I Zeeman Observations of Centaurus A," Sarma, A. P., Troland, T. H., & Rupen, M. P. 2002, *Astrophysical Journal*, 564, 696
- [6] "Very Long Baseline Array Observations of the Zeeman Effect in H<sub>2</sub>O Masers in W3 IRS 5," Sarma, A. P., Troland, T. H., & Romney, J. D. 2001, *Astrophysical Journal (Letters)* 554, L217
- [7] "VLA OH and H I Zeeman Observations of the NGC 6334 Complex," Sarma, A. P., Troland, T. H., Roberts, D. A., & Crutcher, R. M. 2000, *Astrophysical Journal*, 533, 271
- [8] "Australia Telescope Observations of the CTB 33 Complex," Sarma, A. P., Goss, W. M., Green, A. J. & Frail, D. A. 1997, *Astrophysical Journal*, 483, 33

**Other Publications & Conferences**

- [1] "VLBA Zeeman Effect Observations of water masers in the Star Forming region OH43.8-0.1," Sarma, A. P., Troland, T. H., Romney, J. D., & Huynh, E. 2005, Jan. American Astronomical Society (AAS) meeting #207, abstract #195.01
- [2] "SMA 850 micron Observations of CepA East -- Many Protostars, no Disk," Brogan, C. L., Chandler, C. R., Shirley, Y., Hunter, T. R., Sarma, A. P., 2005, Jan. American Astronomical Society (AAS) meeting #207, abstract #
- [3] "High Spatial Resolution SMA Observations of Cepheus A at 342 GHz," Sarma, A. P., Brogan, C. L., & Shirley, Y. 2005, Conference on Submillimeter Astronomy in the Era of the SMA, Harvard-Smithsonian Center for Astrophysics (CfA), June 13-16, 2005
- [4] "Magnetic Fields in the Star Forming region S88B," Sarma, A. P., Brogan, C. L., Bourke, T., Troland, T. H., Crutcher, R. M., & Myers, P. C. 2005, Jan. American Astronomical Society (AAS) meeting #205, abstract #139.15
- [5] "Recent SMA Observations of the Hot Cores G12.89+0.49, W33A, and CepA2," Brogan, C. L., Shirley, Y. J., Chandler, C. J., Sarma, A. P., 2005, Jan. AAS meeting #205, abstract #166.06
- [6] "VLA OH Zeeman Observations of the NGC 6334 Complex Source A," Mayo, E. A., Sarma, A. P., Troland, T. H., & Abel, N. P. 2005, Jan. AAS meeting #205, abstract #99.07
- [7] "VLA Zeeman observations of the NGC 6334 complex," Mayo, E. A., Sarma, A. P., & Troland, T. H. 2004, June AAS Meeting #204, abstract #61.13
- [8] "Magnetic Fields near the Young Stellar Object IRAS 16293-2422," Claussen, M., Sarma, A. P., Wootten, A., Marvel, K., B., Wilking, B. 2004, Jan. AAS meeting #203, abstract #94.16
- [9] "Observations of the Zeeman effect in water masers in the star forming region OH43.8-0.1," Sarma, A. P., Troland, T. H., & Romney, J. D. 2004, Jan. AAS meeting #203, abstract #71.07

- [10] "BIMA Observations of polarization in Cepheus A," Lykins, M. L. (undergraduate advisee of A. P. Sarma), Sarma, A. P., Crutcher, R. M., & Lai, S.-P. 2004, Jan. AAS meeting #203, abstract #71.07
- [11] "High resolution BIMA polarization observations of NGC 7538 IRS1," Sarma, A. P., Crutcher, R. M., Lai, S.-P., Cortes, P. 2003, June AAS meeting #202, abstract #29.05
- [12] "VLBA Observations of magnetic fields in star forming regions," Sarma, A. P., Troland, T. H., & Romney, J. D. 2003, Conference on Future Directions in High Resolution Astronomy, Socorro, New Mexico, USA. (Conference Proceedings published 2005 in ASP Conf. Series, 340, 364)
- [13] "VLA H I Observations of the Zeeman effect in Centaurus A," Sarma, A. P., Troland, T. H., & Rupen, M. P. 2001 Gas and Galaxy Evolution, ASP Conference Proceedings, Vol. 240, edited by John E. Hibbard, Michael Rupen, and Jacqueline H. van Gorkom
- [14] "Circular Polarization in water masers – VLA Zeeman effect observations," Sarma, A. P., Troland, T. H., Crutcher, R. M., & Roberts, D. A., 2001, BAAS, 33, 874

### **Recent proposals to major telescopes (2004-2005 only):**

- [1] Very Long Baseline Array (VLBA) proposal to observe water masers in high mass protostellar objects (HMPOs), as Principal Investigator (PI) – proposal submitted Oct. 2005, time granted
- [2] VLBA proposal to observe water masers in the star forming region W49, as PI – proposal submitted Oct. 2005, time granted
- [3] Spitzer Space Telescope proposal for observations of NGC 6334 A, as PI – time granted, 50% observations made, awaiting remaining 50%
- [4] VLBA proposal to map magnetic fields in water masers in the star forming region W3 IRS5 down to intensities of 25 Jy, as PI – time granted, observations carried out, awaiting data.
- [5] VLBA proposal to detect magnetic fields in low mass star forming regions, as co-investigator (co-I) – time granted, observations to be dynamically scheduled.
- [6] Smithsonian Millimeter Array (SMA) proposal to image star forming regions at 850 microns for circumstellar disks, as co-I – time granted, data reduction completed (Brogan)
- [7] VLA proposal to observe OH Zeeman effect in star forming region S88B, as PI – time granted, data reduction completed, paper in preparation.
- [8] VLA proposal to map water masers toward high mass protostellar objects (HMPOs), as PI – time granted, observations completed, data reduction ongoing.

### **Student research supervision**

#### **At DePaul University:**

- 2005 Autumn Elizabeth Huynh, "High angular resolution radio observations of star forming regions"
- 2004-2005 Magdalena Eftimova, "VLA Observations of magnetic fields in S88B"

#### **At Eastern Kentucky University:**

- 2003-2004 Matt Lykins, "BIMA polarization observations of Cepheus A"
- 2002-2003 Kristina O'Brien, "VLA Zeeman effect observations of H I absorption toward Cas A"

**Teaching Experience****Classes taught at DePaul University (as Assistant Professor):**

PHY 104	Solar System astronomy (Liberal Studies Program for undergraduate non-majors)
PHY 200	Light and Atoms (Liberal Studies Program for undergraduate non-majors)
PHY 204	Astronomy of Stars & Galaxies (Liberal Studies Program for undergraduate non-majors)
PHY 360	Quantum Mechanics I (upper level physics majors)
PHY 361	Quantum Mechanics II
PHY 301	Methods of Computational & Theoretical Physics (upper level physics majors)
PHY 320	Electricity & Magnetism I (upper level physics majors)
PHY 321	Electricity & Magnetism II

**Classes taught at ECU (as Assistant Professor):**

AST 130	Introductory Solar System astronomy
AST 135	Introductory astronomy (including laboratory)
PHY 131	Introductory algebra-based physics (including laboratory)
AST 330	Stars, Black Holes, and Galaxies
PHY 558	Classical Mechanics I (upper-level physics majors)
PHY 559	Classical Mechanics II

**Classes taught at University of Kentucky (as T.A.):**

PHY 232	Introductory calculus-based physics recitation
PHY 213	Introductory algebra-based physics laboratory
PHYSExCEL	Active Learning component for PHY 231, PHY 232 (sole responsibility)

**References (addresses and contact information available on request)**

C. G. Goedde, Chair, DePaul University, Physics Department

R. M. Crutcher, Univ. of Illinois at Urbana-Champaign, Astronomy Department

T. H. Troland, Univ. of Kentucky, Physics & Astronomy Department