

Curriculum Vitae

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Birthdate/place: July 1, 1962/New York, New York

Education:

1984 Sc.B. Massachusetts Institute of Technology, Physics
Thesis: *Grain Alignment in Molecular Clouds*
Advisor: C. Alcock
1986 A.M. Harvard University, Physics
1989 Ph.D. Harvard University, Physics
Thesis: *Interstellar Magnetic Fields: An Observational Perspective*
Advisor: P. Myers

Academic Experience:

2005- Director, Harvard Initiative in Innovative Computing
1999- Professor, Harvard University Astronomy Department
1995- Research Associate, Smithsonian Astrophysical Observatory
2001-2002 Visiting Professor, Yale University Astronomy Department (Sabbatical)
1996-1999 Associate Professor, Harvard University Astronomy Department
1995-1997 Head Tutor, Harvard University Astronomy Department
1992-1996 Assistant Professor, Harvard University Astronomy Department
1989-1992 Post-doctoral Fellow, University of California, Berkeley
1984-1989 Research Assistant, Harvard-Smithsonian Center for Astrophysics
1983 Summer Fellow, NASA-Goddard Institute for Space Studies

Honors and Awards:

2004 Sturm Lecturer, Wesleyan University
1998 Bok Prize, Harvard University
1997 Newton Lacy Pierce Prize, American Astronomical Society
1994- National Science Foundation Young Investigator
1994 Pedagogical Innovation Award, Harvard University
1993-1995 Alfred P. Sloan Fellow
1989-1991 President's Fellowship, University of California, Berkeley
1990 First Prize Paper, NATO ASI on Star Formation
1986-1989 Amelia Earhart Fellowships from Zonta International
1985 Francis Lee Freidman Award in Physics, Harvard University
1983 Sigma Pi Sigma, MIT

Society Memberships:

American Association for the Advancement of Science; American Association of University Professors; American Astronomical Society; International Astronomical Union; Association for Computing Machinery; URSI Commission J (Radio Astronomy)

Advisory & Review Committees:

NASA-Infrared Space Observatory Key Projects Review (1992); Scientific Working Group for NRAO Green Bank Telescope (1992-99); Arecibo Users and Scientific Advisory Committee (1993-96); NSF Site Review for Center for Particle Astrophysics (1994); NASA-Astrophysics Data Program Review (1995); Smithsonian Astrophysical Observatory Time Allocation Committee (1995-97); NSF-Caltech Submillimeter Observatory Review (1996); NSF Galactic Astronomy ISM Panel (1996, 2000 (chair)); M4 Satellite Science Advisory Group, Chair (1997, 2000); Harvard University Faculty Council (1997-98); AAS Publications Board (1998-2001); United States Square Kilometer Array Consortium Representative (1999-); National Academy of Science's Committee on Astronomy and Astrophysics (2000-2003); NASA-SIRTF Legacy Review, Panel Chair (2000); AAS Committee on Astronomy and Public Policy (2000-6); NRAO VLA/VLBA Time Allocation Committee (2001-4); AUI NRAO Director Search Committee (2002); Harvard University Provost's Committee on Science (2002-3); Task Force on Science and Technology (Harvard, 2003-4); Center for Astrophysics Director Search Advisory Committee (2003-4); Spitzer Science Center Oversight Committee (2003-6); Harvard Commission of Inquiry (2004-5, 2007-8); Harvard Subcommittee on Quantitative Reasoning (2002-); Goldwater Scholarship Selection Committee (2004-); Harvard FAS Dean Search Advisory Committee (2006-7); AAS Chambliss Award Committee (2006-7).

Bibliography for Alyssa A. Goodman

2007

- Foster, J., Román-Zúñiga, Carlos G., Goodman, A. A., Lada, E. A., Alves, J. 2007, "Hunting Galaxies to (and for) Extinction," *ApJ*, in press, currently: arXiv:0710.5767
- Goodman, A., Pineda, J. & Schnee, S. 2007, "The True Column Density Distribution in Molecular Clouds," *ApJ*, submitted
- Goodman, A., Rosolowsky, E., Borkin, M., Foster, J., Halle, M., Kauffmann, J., Pineda, J. E. 2007, "Seeking and Finding the 'True' Mass Distribution in Star-Forming Molecular Clouds," *Nature*, submitted
- Goodwin, S. P., Kroupa, P., Goodman, A., & Burkert, A. 2007, "The Fragmentation of Cores and the Initial Binary Population", *Protostars and Planets V*, 133-147.
- Pineda, J. E., Caselli, P., Goodman, A. 2007, "A COMPLETE Calibration of the X Factor and the ^{13}CO Abundance in the Perseus Molecular Cloud Complex," *ApJ*, submitted

- Rosolowsky, E., et al. 2007, “An Ammonia Spectral Atlas of Dense Cores in Perseus,” *AJ Supp.*, in press
- Schnee, S., Caselli, P., Goodman, A. A., Arce, H. G., Ballesteros-Paredes, J., Kuchibhotla, K. 2007, “TMC-1C: an accreting starless core,” *ApJ*, in press: currently arXiv:0706.4115
- Schnee, S., Kauffmann, J., Goodman, A., Bertoldi, F. 2007, “The Effect of Noise in Dust Emission Maps on the Derivation of Column Density, Temperature, and Emissivity Spectral Index,” *ApJ*, 657, 838-848
- Schnee, S., Li, J. G., Goodman, A., & Sargent, A. I. 2007, “Dust Emission from the Perseus Molecular Cloud,” *ApJ*, submitted

2006

- Borkin, M., Goodman, A., Halle, M., & Alan, D. 2006, “Application of Medical Imaging Software to 3D Visualization of Astronomical Data,” *ArXiv Astrophysics e-prints*, 0611400
- Foster, J. B., & Goodman, A. A. 2006, “Cloudshine: New Light on Dark Clouds,” *ApJ*, 636, L105-L108
- Pineda, J. E., et al. 2006, “Clumpfinding in the Perseus Molecular Cloud,” *Rev. Mex. Astron. Astrof. Conf. Ser.*, 26, 164
- Ridge, N. A., Schnee, S. L., Goodman, A. A., & Foster, J. B. 2006, “The COMPLETE Nature of the Warm Dust Ring in Perseus,” *ApJ*, 643, 932
- Ridge, N. A., Goodman, A.A. et al. 2006, “The COMPLETE Survey of Star-Forming Regions: Phase I Data,” *AJ*, 131, 2921-2933
- Schnee, S., Bethell, T., Goodman, A. 2006, “Estimating the Column Density in Molecular Clouds with Far-Infrared and Submillimeter Emission Maps,” *ApJ*, 640, L47-L50

2005

- Borkin, M. A., Ridge, N. A., Goodman, A. A., & Halle, M. 2005, “Demonstration of the applicability of 3D Slicer to Astronomical Data Using ^{13}CO and C^{18}O Observations of IC348” (astro-ph/0506604)
- Schnee, S. & Goodman, A. 2005, “Density and Temperature Structure of TMC-1C from 450 and 850 Micron Maps,” *ApJ*, **624**, 254-266
- Schnee, S. L., Ridge, N. A., Goodman, A. A., Li, J. G. 2005, “A COMPLETE Look at the Use of IRAS Emission Maps to Estimate Extinction and Dust Temperature,” *ApJ*, 634, 442-450

2004

- Bourke, T. L., & Goodman, A. A. 2004. “Magnetic Fields in Molecular Clouds,” in IAU Symposium, in *Star Formation at High Angular Resolution*, 221, 83

Goodman, A. A. 2004. “The COMPLETE Survey of Star-Forming Regions on its Second Birthday,” in ASP Conf. Ser. 323, in *Star Formation in the Interstellar Medium*, 171

Goodman, A. A., & Arce, H. G. 2004, “PV Cep: Young Star Caught Speeding?,” *ApJ*, 608, 831-845

2003

Padoan, P., Goodman, A. A., & Juvela, M. 2003, “The Spectral Correlation Function of Molecular Clouds: A Statistical Test for Theoretical Models,” *ApJ*, 588, 881-893

2002

Arce, H. G., & Goodman, A. A. 2002, “The Great PV Cephei Outflow: A Case Study in Outflow-Cloud Interaction,” *ApJ*, **575**, 911-927

Arce, H. G., & Goodman, A. A. 2002, “Bow Shocks, Wiggling Jets, and Wide-Angle Winds: A High-Resolution Study of the Entrainment Mechanism of the PV Cephei Molecular (CO) Outflow,” *ApJ*, **575**, 928-949

Ballesteros-Paredes, J., Vázquez-Semadeni, E., & Goodman, A. A. 2002, “Velocity Structure of the Interstellar Medium as Seen by the Spectral Correlation Function,” *ApJ*, **571**, 334-355

2001

Arce, H. G. and Goodman, A.A. 2001, “The Episodic, Precessing Giant Molecular Outflow from IRAS 04239+2436 (HH 300),” *ApJ*, **554**, 132.

Arce, H. G. and Goodman, A.A. 2001, “The Mass-Velocity and Position-Velocity Relations in Episodic Outflows,” *ApJL*, **551**, L171.

Padoan, P., Goodman, A., Draine, B., Juvela, M., Nordlund, A. and Rognvaldsson, O.E. 2001, “Theoretical Models of Polarized Dust Emission from Protostellar Cores,” *ApJ*, **559**, 1005 (astro-ph/0104231).

Padoan, P., Juvela, M., Goodman, A.A. and Nordlund, A. 2001, “The Turbulent Shock Origin of Proto-Stellar Cores,” *ApJ*, **553**, 227.

Padoan, P., Kim, S., Goodman, A. and Staveley-Smith, L. 2001, “A New Method to Measure and Map the Gas Scale Height of Disk Galaxies,” *ApJ*, **555**, L33.

Padoan, P., Nordlund, A., Rognvaldsson, O. E. and Goodman, A. 2001, “Turbulent Fragmentation and the Initial Conditions for Star Formation,” ASP Conf. Ser. 243, 279 (astro-ph 111229)

Padoan, P., Rosolowsky, E.W. and Goodman, A.A. 2001, “The Effects of Noise and Sampling on the Spectral Correlation Function,” *ApJ*, **547**, 862.

2000

Arce, H.G. and Goodman, A.A. 2000, “New Components of YSO Outflows Revealed through High-Resolution,” in *Science with the Atacama Large Millimeter Array (ALMA)*, A. Wooten,

ed.

Arce, H.G. and Goodman, A.A. 2000, "On the Fly Mapping of Giant Molecular Outflows," in *Imaging at Radio through Submillimeter Wavelengths*. ASP Conference Series, ed. J. Mangum.

Goodman, A.A. 2000, "Recycling in the Universe," *Sky & Telescope*, Vol. **100**, No. 5, cover.

Weintraub, D., Goodman, A.A., and Akeson, R. 2000, "Polarized Light from Star Forming Regions," in *Protostars and Planets IV*, ed. V. Mannings, A. Boss and S. Russell, (Tucson: University of Arizona Press) p. 247. (Invited Review)

1999

Arce, H.G. and Goodman, A.A. 1999, "Measuring Galactic Extinction: A Test," *ApJ (Letters)*, **512**, p. 135.

Arce, H.G. and Goodman, A.A. 1999, "An Extinction Study of the Taurus Dark Cloud Complex," *ApJ*, **517**, p. 264.

Riess, A.G.,...Goodman, A.A. et al. 1999, "BVRI Light Curves for 22 Type Ia Supernovae," *AJ*, **117**, 707.

Rosolowsky, E., Goodman, A.A., Wilner, D.J., and Williams, J.P. 1999, "The Spectral Correlation Function—A New Tool for Analyzing Spectral Line Maps," *ApJ*, **524**, 887.

1998

Arce, H.G., Goodman, A.A., Bastien, P., Maset, N., and Sumner, M.C. 1998, "The Polarizing Power of the Interstellar Medium in Taurus," *ApJ (Letters)*, **499**, L93.

Barranco, J.A. and Goodman, A.A. 1998, "Coherence in Dense Cores. I: NH₃ Observations," *ApJ*, **504**, 207.

Goodman, A.A., Barranco, J.A., Wilner, D.J. and Heyer, M.H. 1998, "Coherence in Dense Cores. II: The Transition to Coherence.," *ApJ*, **504**, 223

Goodman, A.A., Barranco, J.A., Wilner, D.J. and Heyer, M.H. 1998, "Velocity Coherence in Dense Cores," *Astrophys. Lett. & Comm.*, **37**, 109.

1997

Goodman, A.A., Barranco, J.A., Wilner, D.J. and Heyer, M.H. 1997, "Velocity Coherence in Dense Cores," in *CO: 25 Years of Millimeter Spectroscopy*, ed. W. Latter, S.J.E. Radford, P.R. Jewell, J.G. Mangum and J. Bally (Dordrecht: Kluwer), p. 116.

Goodman, A.A., Barranco, J.A., Wilner, D.J. and Heyer, M.H. 1997, "Velocity Coherence in Dense Cores," in *Star Formation Near and Far*, ed. S. Holt and L. Mundy (New York: AIP), p. 105.

Lazarian, A., Goodman, A.A. and Myers, P.C. 1997, "On the Efficiency of Grain Alignment in

Dark Clouds,” *ApJ*, **490**, 273.

Pound, M. and Goodman, A.A. 1997, “The Ursa Major Molecular Clouds,” in *CO: 25 Years of Millimeter Spectroscopy*, ed. W. Latter, S.J.E. Radford, P.R. Jewell, J.G. Mangum and J. Bally (Dordrecht: Kluwer), p. 33.

Pound, M. and Goodman, A.A. 1997, “Kinematics of the Ursa Major Molecular Clouds,” *ApJ*, **482**, 334.

1996

Goodman, A.A. 1996, “The Interpretation of Polarization Position Angle Measurements,” in *Polarimetry of the Interstellar Medium*, ASP Conference Series, ed. W. Roberge and D. Whittet (San Francisco: ASP), p. 325. (Invited Review)

Troland, T.H., Crutcher, R.M., Goodman, A.A., Heiles, C., Kazès, I. and Myers, P.C. 1996, “The Magnetic Field in the Ophiuchus and Taurus Molecular Clouds,” *Ap. J.*, **471**, 302.

1995

Goodman, A.A. 1995, “The Future of Magnetic Field Mapping in the Interstellar Medium,” in *Airborne Astronomy Symposium on the Galactic Ecosystem: From Gas to Stars to Dust*, ed. M. Haas, J. Davidson and E. Erickson (San Francisco: ASP), **73**, p. 45.

Goodman, A.A. 1995, “Mapping Magnetic Fields in the ISM: Infrared and Sub-mm Polarimetry,” in *The Physics and Chemistry of Interstellar Molecular Clouds*, ed. G. Winnewisser (Dordrecht: Kluwer).

Goodman, A.A., Jones, T.J., Lada, E.A. and Myers, P.C. 1995, “Does Near-Infrared Polarimetry Reveal the Magnetic Field in Cold Dark Clouds?,” *ApJ*, **448**, 748.

Goodman, A.A. and Whittet, D.C.B. 1995, “A Point in Favor of the Superparamagnetic Grain Hypothesis,” *ApJ (Letters)*, **455**, L181.

Myers, P.C., Goodman, A.A., Güsten, R. and Heiles, C. 1995, “Observations of Magnetic Fields in Diffuse Clouds,” *ApJ*, **442**, 177.

1994

Benson, P.J., Caselli, P., Myers, P.C. and Goodman, A.A. 1994, “N₂H⁺ and C₃H₂ in Dense Cores,” in *Clouds, Cores, and Low Mass Stars*, ed. D. Clemens and R. Barvainis (San Francisco: ASP), p. 67.

Goodman, A.A. and Barranco, J.A. 1994, “Velocity Structure in Dense Cores,” in *Clouds, Cores, and Low Mass Stars*, ed. D. Clemens and R. Barvainis (San Francisco: ASP), p. 57.

Goodman, A.A. and Heiles, C. 1994, “The Magnetic Field in the Ophiuchus Dark Cloud Complex,” *ApJ*, **424**, 208.

Goodman, A.A., Myers, P.C., Güsten, R. and Heiles, C. 1994, “The Magnetic Field in Ursa Major,” in *The First Symposium on the Infrared Cirrus and Diffuse Interstellar Clouds*, ed.

R. Cutri and W. Latter, ASP Conference Series, **58**, 425.

Ladd, E.F., Myers, P.C., and Goodman, A.A. 1994, "NH₃ Emission in the Perseus Molecular Cloud Complex," *Ap. J.*, **433**, 117.

Ladd, E.F., Myers, P.C. and Goodman, A.A. 1994, "The Star Forming Character of Nearby Molecular Clouds: Ammonia Observations of the Perseus Molecular Cloud Complex," in *Clouds, Cores, and Low Mass Stars*, ed. D. Clemens and R. Barvainis (San Francisco: ASP), p. 19.

1993

Crutcher, R.M., Troland, T.H., Goodman, A.A., Kazès, I., Heiles, C. and Myers, P.C. 1993, "OH Zeeman Observations of Dark Clouds," *ApJ*, **407**, 175.

Goodman, A.A., Benson, P.J., Fuller, G.A. and Myers, P.C. 1993, "Dense Cores in Dark Clouds VIII.: Velocity Gradients," *Ap. J.*, **406**, 528.

Heiles, C., Goodman, A.A., McKee, C.F. and Zweibel, E.G. 1993, "Magnetic Fields in Star-Forming Regions: Observations," in *Protostars and Planets III*, ed. E.H. Levy and J.I. Lunine (Tuscon: University of Arizona Press), p. 279. (Invited Review)

McKee, C.F., Zweibel, E.G., Goodman, A.A. and Heiles, C. 1993, "Magnetic Fields in Star-Forming Regions: Theory," in *Protostars and Planets III*, ed. E.H. Levy and J.I. Lunine (Tuscon: University of Arizona Press), p. 327. (Invited Review)

1992

Goodman, A.A., Jones, T.J., Lada, E.A., and Myers, P.C., "The Structure of Magnetic Fields in Dark Clouds: Infrared Polarimetry in B216-217," *Ap. J.*, **399**, 108.

1991

Goodman, A.A. 1991, "Magnetic Fields: A Photo Essay," in *Atoms, Ions, and Molecules: New Results in Spectral Line Astrophysics*, ed. A. Haschick and P.T.P. Ho, (San Francisco: A.S.P. Conference Series), p. 333. (Invited Review)

Goodman, A.A., Myers, P.C., and Bastien, P. 1991, "Polarization of Background Starlight and the Structure of the Interstellar Magnetic Field," *Fragmentation of Molecular Clouds and Star Formation*, ed. E. Falgarone (Dordrecht: Kluwer), p. 417.

Heiles, C., Goodman, A.A., McKee, C.F., and Zweibel, E.G. 1991, "Magnetic Fields in Dense Regions," in *Fragmentation of Molecular Clouds and Star Formation*, ed. E. Falgarone (Dordrecht: Kluwer), p. 43. (Invited Review)

Ladd, E.F., Fuller, G.A., Myers, P.C., Stacy, J.G., Benson, P.J. and Goodman, A.A. 1991, "Observations of Dense Gas in Regions Forming Intermediate Mass Stars," in *Atoms, Ions, and Molecules: New Results in Spectral Line Astrophysics*, ed. A. Haschick and P.T.P. Ho (San Francisco: A.S.P. Conference Series), p. 297.

Myers, P.C., Fuller, G.A., Goodman, A.A., and Benson, P.J. 1991, "Dense Cores in Dark Clouds

VI.: Shapes,” *Ap. J.*, **376**, 561.

Myers, P.C. and Goodman, A.A. 1991, “On the Dispersion in Direction of Interstellar Polarization,” *Ap. J.*, **373**, 509.

1990

Goodman, A.A., Bastien, P., Myers, P.C., and Ménard, F. 1990, “Optical Polarization Maps of Star Forming Regions in Perseus, Taurus, and Ophiuchus,” *Ap. J.*, **359**, 363.

Goodman, A.A., Myers, P.C., Bastien, P., Crutcher, R.M., Heiles, C., Kazès, I., and Troland, T.H. 1990, “The Magnetic Field in the Perseus Molecular Cloud Complex,” in *Galactic and Extragalactic Magnetic Fields*, ed. R. Beck, P.P. Kronberg, and R. Wielebinski (Dordrecht: Kluwer), p. 319.

Myers, P.C. and Goodman, A.A. 1990, “Observations and Models of Magnetic Molecular Clouds,” in *Galactic and Extragalactic Magnetic Fields*, ed. R. Beck, P.P. Kronberg, and R. Wielebinski (Dordrecht: Kluwer), p. 309.

1989

Goodman, A.A., Crutcher, R.M., Heiles, C., Myers, P.C., and Troland, T.H. 1989, “Measurement of Magnetic Field Strength in the Dark Cloud Barnard 1,” *ApJ (Letters)*, **338**, L61.

Goodman, A.A., Crutcher, R.M., Heiles, C., Myers, P.C., and Troland, T.H. 1989, “Measurement of the Magnetic Field in the Molecular Cloud B1,” in *The Physics and Chemistry of Interstellar Clouds*, ed. G. Winnewisser (Berlin: Springer-Verlag), p. 182.

1988

Goodman, A.A. and Myers, P.C. 1988, “Magnetic and Virial Equilibrium in Molecular Clouds,” in *Molecular Clouds in the Milky Way and External Galaxies*, ed. R.L. Dickman, R.L. Snell, and J.S. Young (Berlin: Springer-Verlag), p. 128.

Myers, P.C. and Goodman, A.A. 1988, “Evidence for Magnetic and Virial Equilibrium in Molecular Clouds,” *ApJ (Letters)*, **326**, L27.

Myers, P.C. and Goodman, A.A. 1988, “Magnetic Molecular Clouds: Indirect Evidence for Magnetic Support and Ambipolar Diffusion,” *ApJ*, **329**, 392.

1987

Goodman, A.A. and Myers, P.C. 1987, “Magnetic Fields in Molecular Clouds: How Supportive are They Under Pressure?,” in *Interstellar Matter*, ed. J.M. Moran and P.T.P. Ho (New York: Gordon and Breach), p. 169.

Stacy, J.G., Benson, P.J., Myers, P.C. and Goodman, A.A. 1987, “Dense Cores Associated with Herbig Ae/Be Stars,” in *Interstellar Matter*, ed. J.M. Moran and P.T.P. Ho (New York: Gordon and Breach), p. 179.

1986

Goodman, A.A. 1986, "Magnetic Fields in Molecular Cloud Cores: Limits on Field Strengths and Linewidths," in *Summer School on Interstellar Processes*, ed. D.J. Hollenbach and H.A. Thronson, NASA Technical Memorandum 88342, p. 169.