

Oral presentation topics for Astronomy 515 (John's list)

Spring 2005

Following are a number of topics with references from the recent literature which are related to the material covered in lectures, and which point out areas of current research and future directions for ISM studies. You may also choose to present other related topics from the recent literature. Please consult with one of us about your choice of topic well in advance of your talk date.

These references are from the ADS, where you may get abstracts and the full articles in most cases.

WMAP AND DUST

Microwave Interstellar Medium Emission Observed by
the Wilkinson Microwave Anisotropy Probe

Authors: Finkbeiner, Douglas P.

Journal: The Astrophysical Journal, Volume 614, Issue 1, pp.
186-193.

MOLECULAR CLOUDS AND DUST

Title: Implications of Submillimeter Wave Astronomy
Satellite Observations for Interstellar Chemistry
and Star Formation

Authors: Bergin, E. A. et al.

Journal: The Astrophysical Journal, Volume 539, pp.
L129-L132.

Title: Dust Heating by the Interstellar Radiation Field in
Models of Turbulent Molecular Clouds

Authors: Bethell, Thomas J.; Zweibel, Ellen G.;
Heitsch, Fabian; Mathis, J. S.

Journal: The Astrophysical Journal, Volume 610, Issue 2, pp.
801-812.

MOLECULAR CLOUD CHEMISTRY

Title: Time dependent chemical models of spherical dark
clouds

Authors: Nejad, L. A. M.; Wagenblast, R.

Journal: Astronomy and Astrophysics, v.350, p.204-229 (1999)

Title: O2 in Interstellar Molecular Clouds
Authors: Goldsmith, P. F.; et al.
Journal: The Astrophysical Journal, Volume 539, Issue 2, pp. L123-L127.

STRUCTURE OF ORION MOLECULAR CLOUD REGION

Title: SCUBA-Mapping at the JCMT: The Orion Molecular Ridge
Authors: Johnstone, Doug; Bally, John
Journal: ApJ, 510, 49

INTERSTELLAR DUST AND GAS: ISO RESULTS

Title: The Composition and Distribution of Dust along the Line of Sight toward the Galactic Center
Authors: Chiar, J. E.; Tielens, A. G. G. M.; Whittet, D. C. B.; Schutte, W. A.; Boogert, A. C. A.; Lutz, D.; van Dishoeck, E. F.; Bernstein, M.P.
Journal: The Astrophysical Journal, Volume 537, Issue 2, pp. 749-762.

Title: ISO observations of the Galactic center interstellar medium. Neutral gas and dust
Authors: Rodríguez-Fernández, N. J.; Martín-Pintado, J.; Fuente, A.; Wilson, T. L.
Journal: Astronomy and Astrophysics, v.427, p.217-229 (2004)

MOLECULAR CLOUD-SOLAR SYSTEM CONNECTION

Title: Identification of molecular-cloud material in interplanetary dust particles
Authors: Messenger, Scott
Journal: Nature, Volume 404, Issue 6781, pp. 968-971 (2000).

STRUCTURE OF BUBBLES, SHELLS, AND "WORMS"

Title: An Infrared and Radio Study of the Galactic Worm GW 46.4+5.5
Authors: Kim, Kee-Tae; Koo, Bon-Chul
Journal: The Astrophysical Journal, Volume 529, Issue 1, pp. 229-240.

STAR FORMATION AND STRUCTURE OF THE ISM

Title: The Evolution of the Interstellar Medium Around Young Stellar Clusters.

Authors: Calzetti, D.; Tremonti, C. A.; Heckman, T. M.;
Leitherer, C.
Journal: Massive Stellar Clusters, Proceedings of the
international workshop held in Strasbourg, France,
November 8-11, 1999. Eds.: A. Lancon, and C. Boily,
Astronomical Society of the Pacific Conference
Series., p.25

Title: Hierarchical Triggering of Star Formation by
Superbubbles in W3/W4

Authors: Oey, M. S.; Watson, Alan M.; Kern, Katie;
Walth, Gregory L.
Journal: The Astronomical Journal, Volume 129, Issue 1, pp.
393-401.

Title: Gas Density, Stability, and Starbursts near the
Inner Lindblad Resonance of the Milky Way

Authors: Stark, Antony A.; Martin, Christopher L.;
Walsh, Wilfred M.; Xiao, Kecheng; Lane, Adair P.;
Walker, Christopher K.
Journal: The Astrophysical Journal, Volume 614, Issue 1, pp.
L41-L44.

MAGNETIC FIELDS AND STAR FORMATION

Title: Magnetism in Interstellar Nurseries at 760 Microns
Authors: Valle, Jacques P.; Bastien, Pierre
Journal: The Astrophysical Journal, Volume 526, Issue 2, pp.
819-832.

WARM NEUTRAL MEDIUM

Title: Detection of H I 21 Centimeter Line Absorption in
the Warm Neutral Medium and in the Outer Arm of the
Galaxy

Authors: Dwarakanath, K. S.; Carilli, C. L.; Goss, W. M.
Journal: The Astrophysical Journal, Volume 567, Issue 2, pp.
940-946.

Title: Abundances and Physical Conditions in the Warm
Neutral Medium toward μ Columbae

Authors: Howk, J. Christopher; Savage, Blair D.; Fabian, Dirk
Journal: The Astrophysical Journal, Volume 525, Issue 1, pp.
253-293.

THE WARM IONIZED MEDIUM: HST/GHRS

Title: Modeling the Warm Ionized Interstellar Medium and
Its Impact on Elemental Abundance Studies
Authors: Sembach, Kenneth R.; Howk, J. Christopher;
Ryans, Robert S. I.; Keenan, Francis P.
Journal: The Astrophysical Journal, Volume 528, Issue 1, pp.
310-324.

Title: Dust in the Ionized Medium of the Galaxy: GHRS
Measurements of AL III and S III
Authors: Howk, J. Christopher; Savage, Blair D.
Journal: The Astrophysical Journal, Volume 517, Issue 2, pp.
746-766.

HI IN THE GALACTIC HALO

Title: Discovery of a Population of H I Clouds in the
Galactic Halo
Authors: Lockman, Felix J.
Journal: The Astrophysical Journal, Volume 580, Issue 1, pp.
L47-L50.

CLOUD STRUCTURE: NEW DATA

Title: Structure Function Scaling of a 2MASS Extinction Map
of Taurus
Authors: Padoan, Paolo; Cambracute;sy, Laurent; Langer,
William
Journal: The Astrophysical Journal, Volume 580, Issue 1, pp.
L57-L60.

Title: Infrared Excess and Molecular Clouds: A Comparison
of New Surveys of Far-Infrared and H I 21 Centimeter
Emission at High Galactic Latitudes
Authors: Reach, William T.; Wall, William F.; Odegard, Nils
Journal: The Astrophysical Journal, Volume 507, Issue 2, pp.
507-525.

Title: Atomic and Molecular Interstellar Absorption Lines
toward the High Galactic Latitude Stars HD 141569
and HD 157841 at Ultra-High Resolution
Authors: Sahu, M. S.; Blades, J. C.; He, L.; Hartmann, Dap;
Barlow, M. J.; Crawford, I. A.

Journal: Astrophysical Journal v.504, p.522

Title: The Anatomy of the Perseus Spiral Arm: 12CO and IRAS Imaging Observations of the W3-W4-W5 Cloud Complex

Authors: Heyer, Mark H.; Terebey, S.

Journal: Astrophysical Journal v.502, p.265

Title: Emission of CO, C I, and C II in W3 Main

Authors: Kramer, C.; Jakob, H.; Mookerjea, B.; Schneider, N.; Brüll, M.; Stutzki, J.

Journal: Astronomy and Astrophysics, v.424, p.887-903 (2004)

TURBULENCE IN THE COLD NEUTRAL MEDIUM

Title: The elusive structure of the diffuse molecular gas: shocks or vortices in compressible turbulence?

Authors: Pety, J.; Falgarone, É.

Journal: Astronomy and Astrophysics, v.356, p.279-286

Title: The Universality of Turbulence in Galactic Molecular Clouds

Authors: Heyer, Mark H.; Brunt, Christopher M.

Journal: The Astrophysical Journal, Volume 615, Issue 1, pp. L45-L48.

HEATING THE WARM IONIZED MEDIUM (TURBULENCE)

Title: Evidence for an Additional Heat Source in the Warm Ionized Medium of Galaxies

Authors: Reynolds, R. J.; Haffner, L. M.; Tufte, S. L.

Journal: The Astrophysical Journal, Volume 525, Issue 1, pp. L21-L24.

MHD MODELS OF THE TURBULENT ISM

Title: Interstellar Phase Transitions Stimulated by Time-dependent Heating

Authors: Kritsuk, Alexei G.; Norman, Michael L.

Journal: The Astrophysical Journal, Volume 580, Issue 1, pp. L51-L55.

Title: Evolution of a superbubble in a turbulent, multi-phased and magnetized ISM

Authors: Korpi, M. J.; Brandenburg, A.; Shukurov, A.; Tuominen, I.

Journal: Astronomy and Astrophysics, v.350, p.230-239 (1999)

Title: A Turbulent Model for the Interstellar Medium. III. Stratification and Supernova Explosions

Authors: Gazol-Patiño, Adriana; Passot, Thierry

Journal: The Astrophysical Journal, Volume 518, Issue 2, pp. 748-759.

Title: The Global Structure and Evolution of a Self-Gravitating Multiphase Interstellar Medium in a Galactic Disk

Authors: Wada, Keiichi; Norman, Colin A.

Journal: The Astrophysical Journal, Volume 516, Issue 1, pp. L13-L16.

Title: A Supernova-regulated Interstellar Medium: Simulations of the Turbulent Multiphase Medium

Authors: Korpi, M. J.; Brandenburg, A.; Shukurov, A.; Tuominen, I.; Nordlund, Å.

Journal: The Astrophysical Journal, Volume 514, Issue 2, pp. L99-L102.

ISM IN NEARBY GALAXIES

Title: Molecular Gas in M82: Resolving the Outflow and Streamers

Authors: Walter, F.; Weiss, A.; Scoville, N.

Journal: The Astrophysical Journal, Volume 580, Issue 1, pp. L21-L25.

Title: A New Probe of the Molecular Gas in Galaxies: Application to M101

Authors: Smith, Denise A.; Allen, Ronald J.; Bohlin, Ralph C.; Nicholson, Natalya; Stecher, Theodore P.

Journal: The Astrophysical Journal, Volume 538, Issue 2, pp. 608-622.

Title: Interstellar Phases in the Magellanic Clouds

Authors: Dickey, J. M. et al.

Journal: New Views of the Magellanic Clouds, IAU Symposium #190, Edited by Y.-H. Chu, N. Suntzeff, J. Hesser, & D. Bohlender. ISBN: 1-58381-021-8, p.45

Title: The large-scale HI structure of the Small Magellanic Cloud
Authors: Stanimirovic, S.; Staveley-Smith, L.; Dickey, J. M.; Sault, R. J.; Snowden, S. L.
Journal: Monthly Notices of the Royal Astronomical Society, Volume 302, Issue 3, pp. 417-436.

Title: Tiny-scale molecular structures in the Magellanic Clouds. I. FUSE, HST and VLT observations
Authors: André, M. K.; Le Petit, F.; Sonnentrucker, P.; Ferlet, R.; Roueff, E.; Civeit, T.; Désert, J.-. M.; Lacour, S.; Vidal-Madjar, A.
Journal: Astronomy and Astrophysics, v.422, p.483-504 (2004)

SUPERNOVA REMNANT-CLOUD INTERACTIONS

Title: An Isolated, Recently Shocked ISM Cloud in the Cygnus Loop Supernova Remnant
Authors: Patnaude, D. J.; Fesen, R. A.; Raymond, J. C.; Levenson, N. A.; Graham, J. R.; Wallace, Debra J.
Journal: The Astronomical Journal, Volume 124, Issue 4, pp. 2118-2134.

Title: Investigation of the Large-scale Neutral Hydrogen near the Supernova Remnant W28
Authors: Velazquez, P. F.; Dubner, G. M.; Goss, W. M.; Green, A. J.
Journal: The Astronomical Journal, Volume 124, Issue 4, pp. 2145-2151.

Title: A Chandra Study of Sagittarius A East: A Supernova Remnant Regulating the Activity of Our Galactic Center?
Authors: Maeda, Y.; Baganoff, F. K.; Feigelson, E. D.; Morris, M.; Bautz, M. W.; Brandt, W. N.; Burrows, D. N.; Doty, J. P.; Garmire, G. P.; Pravdo, S. H.; Ricker, G. R.; Townsley, L. K.
Journal: The Astrophysical Journal, Volume 570, Issue 2, pp. 671-687.

Title: The molecular clouds in the environs of the supernova remnants G349.7+0.2 and G18.8+0.3
Authors: Dubner, G.; Giacani, E.; Reynoso, E.; Parón, S.

Journal: Astronomy and Astrophysics, v.426, p.201-212 (2004)

STAR FORMATION PROCESSES

Title: Outflow-Infall Interactions in Early Star Formation and Their Impact on the Mass-assembling Process in L1228

Authors: Arce, Héctor G.; Sargent, Anneila I.

Journal: The Astrophysical Journal, Volume 612, Issue 1, pp. 342-356.

Title: Probing the Early Stages of Low-Mass Star Formation in LDN 1689N: Dust and Water in IRAS 16293-2422A, B, and E

Authors: Stark, Ronald; Sandell, Gábor; Beck, Sara C.; Hogerheijde, Michiel R.; van Dishoeck, Ewine F.; van der Wal, Peter; van der Tak, Floris F. S.; Schäfer, Frank; Melnick, Gary J.; Ashby, Matt L. N.; de Lange, Gert

Journal: The Astrophysical Journal, Volume 608, Issue 1, pp. 341-364.

Title: Observations of L1521F: A highly evolved starless core

Authors: Crapsi, A.; Caselli, P.; Walmsley, C. M.; Tafalla, M.; Lee, C. W.; Bourke, T. L.; Myers, P. C.

Journal: Astronomy and Astrophysics, v.420, p.957-974 (2004)

Title: On the internal structure of starless cores. I. Physical conditions and the distribution of CO, CS, N₂H⁺, and NH₃ in L1498 and L1517B

Authors: Tafalla, M.; Myers, P. C.; Caselli, P.; Walmsley, C. M.

Journal: Astronomy and Astrophysics, v.416, p.191-212 (2004)