

## Curriculum Vitae

### ROBERT A. FESEN

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**Education:** Ph.D. Astronomy    University of Michigan    1981  
M.S. Astronomy    University of Hawaii    1973  
B.S. Astronomy    Villanova University    1971

**Employment:** 1998–present    Professor, Physics & Astronomy Dept., Dartmouth College  
1992–1998    Associate Professor, Physics & Astronomy Dept., Dartmouth College  
1992–1994    Acting Director, MDM Observatory, Kitt Peak Mtn, Arizona  
1989–1992    Assistant Professor, Physics & Astronomy Dept., Dartmouth College  
1986–1989    Fellow, Center for Astrophysics & Space Astronomy  
University of Colorado  
1983–1986    Research Associate and Lecturer, Department of Astrophysics,  
Planetary, and Atmospheric Sciences  
University of Colorado; Lecturer, Honors Department  
1981–1983    NAS-NRC Research Associate, Goddard Space Flight Ctr.  
National Research Council, National Academy of Science  
1976–1981    Teaching Assistant, Department of Astronomy  
University of Michigan  
Research Assistant, Michigan Spectral Catalog Project,  
University of Michigan  
1973–1976    Computer Programmer, AT&T Comptrollers Department  
New Brunswick, N.J.

**Research Areas:** Supernovae and Supernova Remnants, The Interstellar Medium, Planetary  
Nebulae, High-Altitude Long Duration Science Platforms

**Positions/Fellowships:** Center for Astrophysics & Space Astronomy, Univ. of Colorado, Boulder  
Visiting Astronomer: 1993, 1995, 1996, 2005, 2006, & 2011  
The Lorentz Center, Leiden University, Leiden, The Netherlands: 2007  
C. Troy Shaver Fellowship, Dartmouth College 2002  
Center of Space Sciences, UT Dallas, 1999  
JILA-NIST/Univ. of Colorado, Visiting Fellow, 1998  
Johns Hopkins University, Baltimore, 1992

**Service:** 1986 – Scientific Organizing Committee (SOC), I.A.U. Colloq. 101  
 1989 – NASA/IUE Peer Review Panel, Member  
 1989 – NASA/ROSAT Peer Review Panel, Member  
 1990 – NASA/IUE Peer Review Panel, Member  
 1992 – NASA/ADP Peer Review Panel, Member  
 1993 – NASA/ROSAT Peer Review Panel, Member  
 1996 – NASA/STScI Hubble Spaced Telescope Peer Review Panel, Member  
 1997 – NASA/STScI Hubble Space Telescope Peer Review Panel, Chair  
 1997 – NASA/STScI Hubble Space Telescope TAC, Member  
 1998 – NASA/Chandra X-Ray Observatory Peer Review Panel, Member  
 1998 – SOC Young SNR Workshop, Boulder Colorado  
 2001 – NASA/Chandra X-Ray Observatory Peer Review Panel, Member  
 2003 – NASA/STScI Hubble Space Telescope Peer Review Panel, Member  
 2004 – NASA/STScI Hubble Space Telescope Peer Review Panel, Chair  
 2004 – NASA/STScI Hubble Space Telescope TAC, Member  
 2005 – NASA/Chandra X-Ray Observatory Peer Review Panel, Chair  
 2005 – NASA/Chandra X-Ray Observatory Large Project Panel, Member  
 2007 – NSF/NOAO Kitt Peak Directorship Search Committee, Member  
 2007 – SOC AAS Workshop on Supernova Remnants, Honolulu Hawaii  
 2007 – NASA/STScI Hubble Space Telescope TAC, Member  
 2007 – NSF/Interstellar Medium Science, Peer Review Panel, Member  
 2008 – NASA/Chandra X-Ray Observatory Peer Review Panel, Chair  
 2009 – Nat. Academy of Sci., Astronomy Decadal Science Panel, Member  
 2009 – SOC Science Payloads on High Altitude Platforms, NCAR Boulder  
 2012 – NSF/Supernovae and SN Remnants, Peer Review Panel, Member  
 2015 – Section Editor for “Handbook on Supernovae”  
 2016 – SOC International Conference on Supernova Remnants, Crete Greece  
 2018 – NSF/Supernovae and Fast Radio Bursts, Peer Review Panel, Member  
 2018 – SOC International Conference on Supernova Remnants II, Greece

### **Invited Talks within the last Four Years**

- “Observational Insights on the Internal Structure of Core-Collapse and Type Ia Supernovae” Invited talk at the “Supernova Workshop”, Oct 3, 2016 held at the International Space Science Institute, Bern Switzerland
- ”The Supernova - Supernova Remnant Connection”, February 5, 2016, Physics Dept Colloquium, Florida State University

### Journal Articles in Preparation or Submitted

Thomas G. How, **Fesen, R.A.**, Neustadt, Jack M.M., Black, Christine S., and Outters, N. 2018, “Optical Emission Associated with the Galactic Supernova Remnant G179.0+2.6”, submitted to Monthly Notices of the Royal Astronomical Society

Kerzendorf, Wolfgang E., et al. (includes **Fesen, R.A.** 2017, “No surviving stellar companion for Cassiopeia A” submitted to Nature.

### Publications: 174 Refereed Journal Articles

63 as first author, 54 as second author; 7100 citations,  $h = 48$

- 2018 174:** **Fesen, R.A.**, Neustadt, Jack M.M., Black, Christine S., and Milisavljevic, Dan, 2017, “A Distance Estimate to the Cygnus Loop Based on the Distances to Two Stars Located Within the Remnant”, Monthly Notices of the Royal Astronomical Society
- 2018 173:** Lopez, L.A., and **Fesen, R.A.**, 2018, “The Morphologies and Kinematics of Supernova Remnants”, Space Science Reviews Vol 214, article 44, (26 pp).
- 2017 172:** Black, C.S., Milisavljevic, D., Margutti, R, **Fesen, R.A.**, Patnaude, D., and Parker, S., 2017, “The Transition of a Type IIL Supernova into a Supernova Remnant: Late-time Observations of SN 2013by”, The Astrophysical Journal, Volume 848, 5 (9 pp).
- 2017 171:** Neustadt, J.M., **Fesen, R.A.**, & Black, C.S., 2017, ”Detection of Optical Emission Associated with the Galactic SNR G64.5+0.9”, Monthly Notices of the Royal Astronomical Society, Volume 469, 516-520.
- 2017 170:** **Fesen, Robert A.**, Weil, Kathryn E., Hoefflich, Peter A., Hamilton, A.J.S., 2017, “Optical and UV Spectra of the Remnant of SN 1885 (S And) in M31”, The Astrophysical Journal, Volume 848, Issue 2, article id. 130, 17 pp.
- 2016 169:** Black, C.S., **Fesen, R.A.**, Parrent, J.T., 2016, “Progressive redshifts in the late-time spectra of Type Ia supernovae”, Monthly Notices of the Royal Astronomical Society, Volume 462, 649, (14 pp.)
- 2016 168:** Katsuda, Satoru, Tanaka, Masaomi, Morokuma, Tomoki, **Fesen, Robert A.**, & Milisavljevic, Dan, 2016, “Constraining the Age and Distance of the Galactic Supernova Remnant G156.2+5.7 by H $\alpha$  Expansion Measurements”, The Astrophysical Journal, 826, 108.

- 2016 167:** Parrent, J. T., Howell, D. A., **Fesen, Robert A.**, et al., 2016, “Comparative Analysis of SN 2012dn optical spectra: days -14 to +114”, *Monthly Notices of the Royal Astronomical Society*, 457, 3702-3723.
- 2016 166:** **Fesen, Robert A.** and Milisavljevic, Dan, 2016, “An HST Survey of the Highest-Velocity Ejecta in Cassiopeia A”, *The Astrophysical Journal*, 818, 17, 19 pp.
- 2015 165:** Milisavljevic, D., et al. (includes **Fesen, Robert A.**, 2015, “Metamorphosis of SN 2014C: Delayed Interaction between a Hydrogen Poor Core-collapse Supernova and a Nearby Circumstellar Shell”, *The Astrophysical Journal*, 815, 120, 12 pp.
- 2015 164:** **Fesen, Robert A.**, Brown, Yorke, 2015, “A Method for Establishing a Station-Keeping, Stratospheric Platform for Astronomical Research”, *Experimental Astronomy*, 39, pp.475–493.
- 2015 163:** **Fesen, Robert A.**, Neustadt, Jack M. M., Black, Christine S., Koeppel, Ari H.D., 2015, “Discovery of an Apparent High Latitude Galactic Supernova Remnant”, *The Astrophysical Journal*, 812, 37, 11 pp.
- 2015 162:** **Fesen, Robert A.**, Hoefflich, Peter A., Hamilton, Andrew J.S., 2015, “The 2D Distribution of Iron-rich Ejecta in the Remnant of SN 1885 in M31”, *The Astrophysical Journal*, 804, 140, 13 pp.
- 2015 161:** Black, Christine S. and **Fesen, Robert A.** 2015, “A 3D kinematic study of the northern ejecta ‘jet’ of the Crab nebula”, *Monthly Notices of the Royal Astronomical Society*, Volume 447, Issue 3, p.2540-2550
- 2015 160:** Milisavljevic, Dan and **Fesen, Robert A.**, 2015, “The bubble-like interior of the core-collapse supernova remnant Cassiopeia A”, *Science*, Volume 347, Issue 6221, pp. 526-530
- 2015 159:** Milisavljevic, D., Margutti, R., Parrent, J. T., Soderberg, A. M., **Fesen, R.A.**, and 18 other authors, 2015, “The Broad-lined Type Ic SN 2012ap and the Nature of Relativistic Supernovae Lacking a Gamma-Ray Burst Detection”, *The Astrophysical Journal*, Vol 799, Issue 1, article id. 51, 14 pp.
- 2014 158:** Medina, Amber A., Raymond, John C., Edgar, R.J., Caldwell, Nelson, **Fesen, Robert A.**, and Milisavljevic, Dan, 2014, “Electron-Ion Equilibrium & Shock Precursors in the Northeast Limb of the Cygnus Loop”, *The Astrophysical Journal*, Vol 791, Issue 1, article id. 30, 11 pp.

- 2014 157:** Patnaude, Daniel J. and **Fesen, Robert A.**, 2014, “A Comparison of X-Ray & Optical Emission in Cassiopeia A”, *The Astrophysical Journal*, Vol 789, Issue 2, article id. 138, 21 pp
- 2014 156:** Bufano, F., Pignata, G., Bersten, M., et al. (includes **R.A. Fesen**), 2014, “SN 2011hs: a fast and faint Type IIb supernova from a supergiant progenitor”, *Monthly Notices of the Royal Astronomical Society*, 439, 1807
- 2014 155:** Milisavljevic, D., Margutti, R., Crabtree, K. N., et al. (includes **R.A. Fesen**), 2014, “Interaction between the Broad-lined Type Ic Supernova 2012ap and Carriers of Diffuse Interstellar Bands” *Astrophysical Journal*, Volume 72, L5
- 2014 154:** Margutti, R., Milisavljevic, D., Soderberg, A. M., et al. (includes **R.A. Fesen**), 2014, “A Panchromatic View of the Restless SN 2009ip Reveals the Explosive Ejection of a Massive Star Envelope”, *Astrophysical Journal*, Volume 780, 21
- 2013 153:** Milisavljevic, D., & **Fesen, R.A.** 2013, “A Detailed Kinematic Map of Cassiopeia A’s Optical Main Shell and Outer High-Velocity Ejecta”, *Astrophysical Journal*, Volume 772, 134
- 2013 152:** Milisavljevic, D., Soderberg, A. M., Margutti, R., et al. (includes **R.A. Fesen**), 2013, “SN 2012au: A Golden Link between Superluminous Supernovae and Their Lower-luminosity Counterparts”, *Astrophysical Journal*, Volume 770, L38
- 2013 151:** Milisavljevic, D.; Margutti, R.; Soderberg, A. M.; Pignata, G.; Chomiuk, L.; **Fesen, R.**, et al., 2013, “Multi-Wavelength Observations of Supernova 2011ei: Time-Dependent Classification of Type IIb and Ib Supernovae and Implications for their Progenitors”, *Astrophysical Journal*, Volume 767, 71
- 2012 150:** Parrent, J. T.; Howell, D.A.; Friesen, B.; Thomas, R. C.; **Fesen, R.A.**, et al. “Analysis of the Early-time Optical Spectra of SN 2011fe in M101”, 2012, *Astrophysical Journal Letters*, Volume 752, Issue 2, article id. L26, 7 pp.
- 2012 149:** Ghavamian, Parviz; Long, Knox S.; Blair, William P.; Park, Sangwook; **Fesen, R.**; Gaensler, B. M.; Hughes, John P.; Rho, Jeonghee; Winkler, P. Frank, ‘Spitzer Imaging and Spectral Mapping of the Oxygen-rich Supernova Remnant G292.0+1.8’ 2012, *Astrophysical Journal*, Volume 750, Issue 1, article id. 39, 10 pp.

- 2012 148:** Milisavljevic, D., **Fesen, R.A.**, Chevalier, R., Kirshner, R., Challis, P., and Turatto, M., “Late-Time Optical Emission From Core-Collapse Supernovae”, 2012, *Astrophysical Journal*, Volume 751, Issue 1, article id. 25, 14 pp.
- 2012 147:** **Fesen, R.A.**, Richard Kremer, Daniel Patnaude, & Dan Milisavljevic, “The SN 393 – SNR RX J1713.7-3946 Connection”, 2012, *Astronomical Journal*, 143, 27 (6 pp).
- 2011 146:** Winkler, P.F., Hamilton, A.J.S., Long, K.S., and **Fesen, R.A.**, “Time Evolution of the Reverse Shock in SN 1006”, 2011, *Astrophysical Journal*, 742, 80 (7 pp).
- 2011 145:** **Fesen, R.A.**, Zastrow, J., Hammell, M., Shull, J.M., & Silvia, D., “Ejecta Knot Flickering, Mass Ablation, and Fragmentation in Cassiopeia A” 2011, *Astrophysical Journal*, 736, 109 (13 pp).
- 2011 144:** Meikle, Peter; Kotak, Rubina; Farrah, Duncan; Mattila, Seppo; van Dyk, Schuyler D.; Andersen, Anja C.; **Fesen, R.A.**; et al., “Dust and the type II-Plateau supernova 2004dj”, 2011, *Astrophysical Journal*, 732, 109 (28 pp).
- 2011 143:** Parrent, Jerod T.; Thomas, R. C.; **Fesen, R.A.**; Marion, G. H.; Challis, Peter; Garnavich, Peter M.; Milisavljevic, Dan; Vink, Jzsef; Wheeler, J. Craig, “A Study of Carbon Features in Type Ia Supernova Spectra”, 2011, *Astrophysical Journal*, 732, 30 (15 pp).
- 2011 142:** Patnaude, Daniel J.; Vink, Jacco; Laming, J. Martin, & **Fesen, R.A.**, “A Decline in the Nonthermal X-ray Emission from Cassiopeia A”, 2011, *Astrophysical Journal Letters*, 729, L28 (5 pp).
- 2011 141:** Eriksen, K.A., Hughes, J.P., Badenes, C., **Fesen, R.A.**, et al., “Evidence for Particle Acceleration to the Knee of the Cosmic Ray Spectrum in Tycho’s Supernova Remnant”, 2011, *Astrophysical Journal Letters*, 728, L28 (5 pp).
- 2010 140:** Bietenholz, M.F., Bartel, N., Milisavljevic, D., **Fesen, R.A.**, Challis, P., and Kirshner, R.P., “The first VLBI image of the young, oxygen-rich supernova remnant in NGC 4449”, 2010, *Monthly Notices of the Royal Astro. Soc.*, 409, 1594–1600.
- 2010 139:** Kasliwal, M.M., et al. (includes **Fesen, R.A.**), “Rapidly Decaying Supernova 2010X: A Candidate ”.Ia” Explosion” 2010, *Astrophysical Journal Letters*, 723, L98–102.

- 2010 138:** **Fesen, R.A.**, & Milisavljevic, D., “Optical Discovery of an Apparent Galactic Supernova Remnant G159.6+7.3” 2010, *Astronomical Journal*, 140, 1163–1167.
- 2010 137:** Humphreys, R.M., Prieto, J.L., Rosenfield, P., Helton, L.A., Kochanek, C.S., Stanek, K.Z., Khan, R., Szczygiel, D., Mogren, K., **Fesen, R.A.**, Milisavljevic, D., Williams, B., Murphy, J., Dalcanton, J., and Gilbert, K., “SN 2010U: A Luminous Nova in NGC 4214” 2010, *Astrophysical Journal*, 718, L43–L47.
- 2010 136:** **Fesen, R.A.**, & Milisavljevic, D., “The Nature of the Strong 24 micron *Spitzer* Source J222557+601148: Not a Young Galactic Supernova Remnant” 2010, *Astronomical Journal*, 139, 2595–2599.
- 2010 135:** Milisavljevic, D., **Fesen, R.A.**, Gerardy, C. L., Kirshner, R. P., & Challis, P. “Doublets and Double Peaks: Late-Time [O I] 6300,6364 Line Profiles of Stripped-Envelope, Core-Collapse Supernovae”, 2010, *Astrophysical Journal*, 709, 1343–1355.
- 2009 134:** Kotak, R. et al. (includes **Fesen, R.A.**), “Dust and the Type II-Plateau Supernova 2004et”, 2009, *Astrophysical Journal*, 704, 306–323.
- 2009 133:** Kerzendorf, W.E., Schmidt, B.P., Asplund, M., Nomoto, K., Podsiadlowski, P., Frebel, A., & **Fesen, R.A.**, 2009, “Subaru high-resolution spectroscopy of Star G in the Tycho Supernova Remnant”, *Astrophysical Journal*, 701, 1665–1672.
- 2009 132:** Patnaude, D. J., **Fesen, R.A.**, “Proper Motions and Brightness Variations of Nonthermal X-ray Filaments in the Cassiopeia A Supernova Remnant” 2009, *Astrophysical Journal*, 697, 535–543.
- 2009 131:** Milisavljevic, D., **Fesen, R.A.**, Kirshner, R. P., & Challis, P., “The Evolution of Late-Time Optical Emission from SN 1979C” 2009, *Astrophysical Journal*, 692, 839–843.
- 2008 130:** Hammell, M.C., & **Fesen, R.A.**, “A Catalog of Outer Ejecta Knots in the Cassiopeia A Supernova Remnant”, 2008, *Astrophysical Journal Suppl.*, 179, 195–208.
- 2008 129:** Milisavljevic, D. & **Fesen, R.A.**, “Late-Time Optical Emission from SN 1986J” 2008, *Astrophysical Journal*, 684, 1170–1173.

- 2008 128:** Milisavljevic, D. & **Fesen, R.A.**, “The Nature of the Ultraluminous Oxygen-Rich Supernova Remnant in NGC 4449”, 2008, *Astrophysical Journal*, 677, 306–316.
- 2008 127:** Rudie, G.C, **Fesen, R.A.**, & T. Yamada, “The Crab Nebula’s Dynamical Age as Measured from its Northern Filamentary Jet”, 2008, *Monthly Notices of the Royal Astronomical Society*, 384, 1200–1206.
- 2008 126:** **Fesen, R.**, Rudie, G., Hurford, A., & Soto, A., “Optical Imaging and Spectroscopy of the Galactic Supernova Remnant 3C 58 (G130.7+3.1)”, 2008, *Astrophysical Journal Suppl.*, 174, 379–395.
- 2007 125:** Hamilton, A.J.S., **Fesen, R.A.**, & Blair, W.P., “A High Resolution UV Absorption Spectrum of Supernova Ejecta in SN1006” 2007, *Monthly Notices of the Royal Astronomical Society*, 381, 771–778.
- 2007 124:** Gerardy, C.L., & **Fesen, R.A.**, “Discovery of Extensive Optical Emission Associated with the X-ray Bright Galactic Supernova Remnant G156.2+5.7”, 2007, *Monthly Notices of the Royal Astronomical Society*, 376, 929–938.
- 2007 123:** **Fesen, R.A.**, Hoefflich, P.A., Hamilton, A.J.S., Hammell, M.C., Gerardy, C.L., Khokhlov, A.M., & Wheeler, J.C., “The Chemical Distribution in a Subluminous Type Ia Supernova: Hubble Space Telescope Images of the SN 1885 Remnant”, 2007, *Astrophysical Journal*, 658, 396–409.
- 2007 122:** Patnaude, D.J., & **Fesen, R.A.**, “Small-Scale X-Ray Variability in the Cassiopeia A Supernova Remnant”, 2007, *Astronomical Journal*, 133, 147–153.
- 2006 121:** Motohara, K., Maeda, K., Gerardy, C.L., Nomoto, K., Tanaka, M., Tomimaga, N., Ohkubo, T., Mazzali, P.A., **Fesen, R.A.**, Hflich, P., & Wheeler, J.C. “The Asymmetric Explosion of Type Ia Supernovae as Seen from Near-Infrared Observations”, 2006, *Astrophysical Journal*, 652, L101–L104.
- 2006 120:** Seward, F. D.; Tucker, W. H., & **Fesen, R.A.**, “Faint X-Ray Structure in the Crab Pulsar Wind Nebula”, 2006, *Astrophysical Journal*, 652, 1277–1287.
- 2006 119:** Kotak, R., et al. (includes **Fesen, R.A.**), “Spitzer Measurements of Atomic and Molecular Abundances in the Type IIP SN 2005af”, 2006, *Astrophysical Journal*, 651, L117–L120.
- 2006 118:** Meikle, W.P.S., Mattila, S., Gerardy, C.L., Kotak, R., Pozzo, M., van Dyk, S.D., Farrah, D., **Fesen, R.A.**, Filippenko, A.V., Fransson, C., Lundqvist,



P., Sollerman, J., & Wheeler, J.C., “A Spitzer Space Telescope Study of SN 2002hh: An Infrared Echo from a Type IIP Supernova”, 2006, *Astrophysical Journal*, 649, 332–344.

- 2006 117: **Fesen, R.A.**, Hammell, M.C., Morse, J., Chevalier, R.A., Borkowski, K.J., Dopita, M.A., Gerardy, C.L., Lawrence, S.S., Raymond, J.C., & van den Bergh, S., “The Expansion Asymmetry and Age of the Cassiopeia A Supernova Remnant”, 2006, *Astrophysical Journal*, 645, 283–292.
- 2006 116: **Fesen, R.A.**, Hammell, M.C., Morse, J., Chevalier, R.A., Borkowski, K.J., Dopita, M.A., Gerardy, C.L., Lawrence, S.S., Raymond, J.C., & van den Bergh, S., “Discovery of Outlying, High-Velocity Oxygen-Rich Ejecta in Cassiopeia A”, 2006, *Astrophysical Journal*, 636, 859–872.
- 2006 115: **Fesen, R.A.**, Pavlov, G.G., & Sanwal, D., “Near-Infrared and Optical Limits for the Central X-ray Point Source in the Cassiopeia A Supernova Remnant”, 2006, *Astrophysical Journal*, 636, 848–858.
- 2005 114: Patnaude, D. J. & **Fesen, R.A.**, “Model Simulations of a Shock-Cloud Interaction in the Cygnus Loop”, 2005, *Astrophysical Journal*, 633, 240.
- 2005 113: Immler, S., **Fesen, R.A.**, Van Dyk, S. D., Weiler, K. W., Petre, R., Lewin, W. H. G., Pooley, D., Pietsch, W., Aschenbach, B., Hammell, M. C., & Rudie, G. C., “Late-Time X-Ray, UV, and Optical Monitoring of Supernova 1979C”, 2005, *Astrophysical Journal*, 632, 283.
- 2005 112: Winkler, P.F., Long, K.S., Hamilton, A.J.S., & **Fesen, R.A.**, “Probing Multiple Core Samples through the SN 1006 Remnant by UV Absorption Spectroscopy”, 2005, *Astrophysical Journal*, 624, 189–197.
- 2004 111: Hoefflich, P., Gerardy, C.L., Nomoto, K., Motohara, K., **Fesen, R.A.**, Maeda, K., Ohkubo, T., Tominaga, N., and Wheeler, J.C., “Signatures of Electron Capture in Iron-Rich Ejecta of SN 2003du”, 2004, *Astrophysical Journal*, 617, 1258–1266.
- 2004 110: Hwang, U., et al. (includes **Fesen, R.A.**), “A Million-Second Chandra View of Cassiopeia A”, 2004, *Astrophysical Journal Letters*, 615, L117–L120.
- 2004 109: Morse, J., **Fesen, R.A.**, Chevalier, R.A., Borkowski, K.J., Gerardy, C.L., Lawrence, S.S., and van den Bergh, S., “The Location of the Optical Reverse Shock in the Cassiopeia A Supernova Remnant”, 2004, *Astrophysical Journal*, 614, 727–736.

- 2004 108:** DeLaney, T., Rudnick, L., **Fesen, R.A.**, Hwang, U., Jones, T.W., Petre, R., and Morse, J., “Kinematics of X-Ray Emitting Components in Cassiopeia A”, 2004, *Astrophysical Journal*, 613, 343-348.
- 2004 107:** Gerardy, C.L., Hoefflich, P., **Fesen, R.A.**, Marion, G.H., Nomoto, K., Quimby, R., Schaefer, B.E., Wang, L., and Wheeler, J.C., “SN 2003du: Signatures of the Circumstellar Environment in a Normal Type Ia Supernova?”, 2004, *Astrophysical Journal*, 607, 391–405.
- 2003 106:** Patnaude, D. J. & **Fesen, R.A.**, “Chandra Observations of the Luminous, O-Rich SNR in the Irregular Galaxy NGC 4449”, 2003, *Astrophysical Journal*, 587, 221–226.
- 2002 105:** Gerardy, C. L., **Fesen, R.A.**, Nomoto, K., Maeda, K., Höflich, P., & Wheeler, J.C., “Carbon Monoxide in the Type Ic SN 2000ew”, 2002, *Pub. Astro. Soc. of Japan*, 54, 095–910.
- 2002 104:** Patnaude, D. J., **Fesen, R.A.**, Raymond, J. C., Levenson, N. A., Graham, J. R. & Wallace, D. J., “An Isolated, Recently Shocked ISM Cloud in the Cygnus Loop SNR” 2002, *Astronomical Journal*, 124, 2118–2134.
- 2002 103:** Gerardy, C. L. **Fesen, R.A.**, Nomoto, K., Garnavich, P.M., Jha, S., Challis, P.M., Kirshner, R.P., Höflich, P., Wheeler, J.C., 2002, “Extraordinary Late-Time Infrared Emission of Type II-n”, *Astrophysical Journal*, 575, 1007–1017.
- 2002 102:** Mazzali, P. A. et al., (includes **Fesen, R.A.**), “The Type Ic Hypernova SN 2002ap”, 2002, *Astrophysical Journal*, 572L, 61–65.
- 2002 101:** Höflich, P., Gerardy, C., **Fesen, R.**, and Sakai, S., ”Infrared Spectra of the Subluminous Type Ia Supernova 1999by”, 2002, *Astrophysical Journal*, 568, 791–806.
- 2002 100:** Hjorth, J. et al. (includes **Fesen, R.A.**), ”The Afterglow and Complex Environment of the Optically Dim Burst GRB 980613”, 2002, *Astrophysical Journal*, 576, 112–119.
- 2002 99:** Mazzali, P. A., et al. (includes R. Fesen), “The Type Ic Hypernova SN 2002ap”, 2002, *Astrophysical Journal*, 572, L61–65.

- 2002 98: Fransson, C., Chevalier, R.A., Filippenko, A.V., Leibundgut, B., Barth, A.J., **Fesen, R.A.**, Kirshner, R.P., Leonard, D.C., Li, W., Lundqvist, P., Sollermann, J., & van Dyk, S.D., "Optical and Ultraviolet Spectroscopy of SN 1995N: Evidence for Strong Circumstellar Interaction", 2002, *Astrophysical Journal*, 572, 350–370.
- 2002 97: Schaller, E.L., & **Fesen, R.A.**, "The Nature of the [Ar III] Bright Knots in the Crab Nebula 2002, *Astronomical Journal*, 123, 941–947.
- 2001 96: **Fesen, R.A.**, Morse, J.A., Chevalier, R.A., Borkowski, K.J., Gerardy, C.L., Lawrence, S.S., & van den Bergh, S., "Hubble Space Telescope WFPC-2 Imaging of Cassiopeia A", 2001, *Astronomical Journal*, 122, 2644–2661.
- 2001 95: Thorstensen, J.R., **Fesen, R.A.**, & van den Bergh, S. "The Expansion Center and Dynamical Age of the Galactic Supernova Remnant Cassiopeia A", 2001, *Astronomical Journal*, 122, 297–307.
- 2001 94: Gerardy, C.L. & **Fesen, R.A.**, "Near-Infrared Spectroscopy of the Cassiopeia A and Kepler Supernova Remnants" 2001, *Astronomical Journal*, 121, 2781–2791.
- 2001 93: **Fesen, R.A.**, "An Optical Survey of Outlying Ejecta in Cassiopeia A: Evidence for a Turbulent, Asymmetric Explosion" 2001, *Astrophysical Journal Suppl.*, 133, 161–186.
- 2001 92: Blair, W. P., **Fesen, R.A.**, & Schlegel, E. M., "Hubble Space Telescope Images of the UltraLuminous Supernova Remnant Complex in NGC 6946" 2001, *Astronomical Journal*, 121, 1497–1506.
- 2000 91: Hamilton, A.J.S., & **Fesen, R.A.**, "An Ultraviolet Fe II Image of SN 1885 in M31" 2000, *Astrophysical Journal*, 542, 779–784.
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