

C. MARTIN GASKELL

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Education

B.S. (honors) in Astrophysics, Edinburgh University (Scotland), 1975.
M.S. in Astrophysics, University of California at Santa Cruz, 1979.
Ph.D. in Astronomy and Astrophysics, University of California, Santa Cruz
(Lick Observatory), E. J. Wampler, thesis advisor, 1981. Dissertation title:
"Spectrophotometry of Intermediate- and High-Redshift Quasars"

Employment

Feb. 1981 – July 1983	Institute of Astronomy, Cambridge University (England), Postdoctoral Research Fellow,
Aug. 1983 – Dec. 1985	Lecturer, Astronomy Dept., Univ. of Texas.
Jan. 1986 – Aug. 1986	Visiting Asst. Prof., Astronomy Dept., Ohio State Univ.
Sep. 1986 – June 1987	Visiting Asst. Prof., State Univ. of New York (Stony Brook).
Jul. 1987 – Aug. 1991	Assistant Prof., Dept. of Astronomy, Univ. of Michigan.
Aug. 1991 – July 1992	Visiting Asst. Prof., Dept. Physics & Astronomy, Univ. of Oklahoma
Aug. 1992 – Aug. 2007	Dept. Physics & Astronomy, Univ. Nebraska, Visiting Assoc. Prof., Assoc. Prof., Senior Lecturer, and Research Assoc. Prof.
Aug. 2007 – present	Research Scientist, Astronomy Dept., University of Texas

Professional Organizations

Fellow of Royal Astronomical Society (RAS).
Member of Space and High Energy Astrophysics Commission (Commission 44) of the
International Astronomical Union (IAU).
Member American Astronomical Society (AAS).
Member High Energy Astrophysics Division (HEAD).



Member of Euro-Asian Astronomical Society (EAAS).
Member Historical Astronomy Division (HAD).

Main Research Interests

Observational and theoretical studies of quasars and other active galaxies in the X-ray, UV, optical and IR spectral regions; dust; polarization; supernovae. See bibliography.

TEACHING EXPERIENCE

Courses Taught

Courses for non-scientists

General Introductory Astronomy for non-scientists (with and without labs.)
Topics in Astronomy (space exploration, search for extra-terrestrial life, etc.)
Extragalactic Astronomy
Solar System Astronomy
Honors seminar in astronomy

Physics

Introductory Physics (Mechanics & Thermodynamics) (with lab.)
Introductory Physics (Light, Electricity & Magnetism) (with lab.)

Courses for Astrophysics Majors

Introduction to Astrophysics
Astronomy and Astrophysics Lab.
Observational Astronomy
Physics of the Interstellar Medium

Graduate Courses

Astronomical Instrumentation and Observing Techniques
Nebular Astrophysics

Other Teaching-Related Activities

Started introduction of CCDs and computers into undergraduate labs at the University of Michigan (1990-1991).

Founder and project director for construction of undergraduate research observatory at University of Nebraska (P.I. of NSF-ILI grant) (1992-1998)

Coordinator of Univ. Nebraska Lincoln ("Student") Observatory (1998 - 2006)

Developed lab course for beginning astrophysics majors at University of Nebraska (2003-2005).

Have given over 150 planetarium shows at the University of Nebraska's Mueller Planetarium. Also ran a smaller number of planetarium shows for classes at Ohio State University and University of Michigan.

Member of University of Nebraska Scholarship of Teaching and Learning group.

Member of University of Nebraska Teaching Council (2004-2007)

Recognition of Teaching Activities

Five-time finalist (one of five finalists out of approx. 1,700 faculty) for the top student-awarded teaching award at the University of Nebraska, the Association of Students of the University of Nebraska's annual "Outstanding Educator" award five years in a row (1999 - 2003).

Nine-time recipient of the "Certificate of Recognition for Contributions to Students" from the Parents Association and Teaching Council of the University of Nebraska (1997, 1998, 1999, 2000, 2001, 2002, 2003, 2005, 2006).

Five-Year Recognition for Contributions to Students (2001).

Two-time recipient of the Mortar Board "Professor of the Month" award (October 1999 and October 2004).

Kappa Delta "Educator of the month" (March 2002)

Recipient of "Shining Star" award for teaching (University of Nebraska Teachers College and Sandoz Residence Hall), 1999.

Thrice listed as one of the "truly inspiring" teachers at the University of Nebraska by students of Sandoz residence hall 1993, 1994, 1995.

Listed in "*Who's Who of American Educators*" (top 4% of educators in USA), 1999 and 2005 editions.

Invited speaker at the session on astronomy education at national meeting of the American Association of Physics Teachers (AAPT) (to speak on development of activities for "hands-on" experience in introductory courses), 1993.

Undergraduate Research

Approximately 40 undergraduates have been involved in research projects with me (this last year I have been employing 8 undergraduate research assistants). A large fraction of these undergraduates have been co-authors on published or submitted papers or have presented results at scientific meetings (student co-authors are indicated by an asterisk following the student's name in my bibliography). All but a few of the students who have graduated have gone on to graduate school.

Undergraduate Honors Theses Supervised

Jordan Burkey (1991) "A Photoionization Analysis of the Metal-Rich Quasar Q0353-383" [Went to graduate school at University of Alabama.]

Rebecca A. Harbison (2005) "Rotation Curve Fitting of Galaxies Using a Dark-Matter Model" (co-advisors Daniel Dale, Univ. Wyoming, and Kam-Ching Leung, Univ. Nebraska) [Now an astronomy graduate student at Cornell University.]

Masatoshi Shoji (2006) "Modeling Polarization Reverberation Mapping of Active Galactic Nuclei (co-advisor Kam-Ching Leung, Univ. Nebraska) [Now an astronomy graduate student at the University of Texas.]

Master's Students Supervised

Cyrus B. Hall (1998) research project: "Evidence of Large-Scale Periodic Structure at High Redshifts" (non-thesis). [transferred to astronomy Ph.D. program at University of Hawaii.]

René W. Goosmann (2002) research project: "Modeling of Optical and Ultraviolet Polarization in Active Galactic Nuclei" (Diplomarbeit for University of Hamburg). [transferred to Ph.D. program at the University of Paris, France. Now a post-doc at the Astronomical Institute of the Czech Academy of Sciences, Prague]

Elizabeth S. Klimek (2003) "Optical Variability of Narrow-Line Seyfert 1 Galaxies" (thesis). [Now in Ph.D. program at the University of New Mexico.]

Doctoral Students Supervised

Anuradha P. Koratkar (1991). "Emission Line Regions in Active Galactic Nuclei: Structure, Kinematics, Physical Conditions, and Chemical Abundances." (nominated for University of Michigan dissertation award). [became project scientist for the Faint Object Spectrograph (FOS) on the *Hubble Space Telescope* and project scientist for PRESTO at the Space Telescope Science Institute.]

Stephanie A. Snedden (2001). "Physical Conditions in Quasar Broad-Line Regions from Hubble Space Telescope and Ground-Based Spectra." [now senior astronomer with the Sloan Digital Sky Survey (SDSS) in New Mexico.]

I have also served as a member of the doctoral thesis committees for a dozen additional graduate students.

Other Graduate Student Research

In addition to the five above mentioned students, a further eight graduate students have been involved in research projects with me. (Student co-authors are indicated by an asterisk following the student's name in my bibliography).

OUTREACH AND PUBLIC EDUCATION

Co-produced (With Jack A. Dunn, Elizabeth Klimek and Mary Hiller) video/planetarium show, "Point of No Return: Quasars and Supermassive Black Holes" using quasars to teach elementary physics concepts to high schoolers and the general public. This show

has been released in 100 planetaria with combined audiences of over 2 million in a dozen countries.

Organizer of monthly public star viewings at Univ. Nebraska Lincoln Observatory (1998 - 2006). In some years these were attended by around 1000 people per year.

Co-organizer of semi-annual public nights at Univ. Nebraska's Behlen Observatory (1992 - 1998)

Member of board of Hyde Memorial Observatory (City of Lincoln observatory dedicated to public education) (1998 - present)

Several radio and TV appearances per year on average (local, national, and international)

Planetarium shows for school children.

Talks to public and to amateur astronomers (several per year).

Telescope-making lectures and demonstrations (at least one per year).

MISCELLANEOUS

Project director (1992-1998), Univ. Nebraska Lincoln Observatory.

Observatory Coordinator (1998 - 2006) Univ. Nebraska Lincoln Observatory.

SERVICE

National/International

Member, Local Organizing Committee of 171st Meeting of American Astronomical Society (1989).

Member, Hubble Space Telescope Time Allocation Panel (Quasars) Cycle 3 (1992).

Deputy-Chair, Hubble Space Telescope Time Allocation Panel ("AGN physics") Cycle 7 (1998).

Chair, Scientific Organizing Committee, "Structure and Kinematics of Quasar Broad Line Regions" (1998).

Chair, Scientific Organizing Committee, "Variability of Active Galactic Nuclei from X-rays to Radio Waves" (2004).

Member (five times) and chair (once), various NASA review panels.

NSF extragalactic review panelist

Local

State University of New York at Stony Brook

Departmental Graduate Student Preliminary Examination Committee

University of Michigan

University-wide:

Astrophysics Institute Steering Committee.

Astronomy Department:

McGraw-Hill Observatory Time Allocation Committee
Colloquium Chairman
Graduate Admission Committee
Graduate Student Preliminary Examination Committee
Ph.D. thesis committees

University of Nebraska

University-wide:

University Research Council
Distinguished and Visiting Scholars Committee
Inter-Disciplinary Grants Committee
Grants-in-Aid Committee
University Teaching Council
Ph.D. thesis committees
Faculty advisor to five student organizations

Physics & Astronomy Department:

Colloquium Committee
Ad hoc Library Committee
Advanced Qualifier Oral Exam Committees

City of Lincoln

Outdoor Lighting Task Force (2005-2007)

Other

Lincoln Astronomy Day organizing committee (1997-2007)

INVITED TALKS

Invited Talks at Meetings

10th annual Sierra Astrophysics Conference (1980).
American Association of Physics Teachers (AAPT) summer meeting (1986).
Principal lecturer, NATO Advanced Study Institute, "Astrophysical Jets and their Engines", Erice, Italy (1986).
24th annual Mid-America Regional Astronomy Conference (MARAC) (1993).
American Association of Physics Teachers summer meeting (1993).
"Time Series in Astronomy and Meteorology", Padua, Italy (1993).
"Reverberation Mapping of the Broad-Line Region in Active Galactic Nuclei", Oxfordshire, England (1994).
"Jets from Stars and Active Galaxies", Bad Honnef, Germany (1995).
"Frontiers of Astrophysics", AAPT summer meeting (1998).
32nd annual Mid-America Regional Astronomy Conference (MARAC) (2001).
Triennial meeting of Euro-Asian Astronomical Society plenary session speaker (2002).
"Variability of Active Galactic Nuclei from X-rays to Radio Waves," Crimea (2004).
"AGN Physics" Ringsberg, Germany (2004)

“The Nuclear Region, Host Galaxy and Environment of Active Galaxies” Huatulco, Mexico (2007).

Seminars and Colloquia

(a) US Universities:

Arizona, Berkeley, Chicago, Hawaii, Iowa, Kansas State, Kentucky, Michigan, Michigan State, Minnesota, Nebraska, Ohio State, Oklahoma, Oklahoma State, Oregon, Penn State, Pittsburgh, Rice, UC Santa Barbara, UC Santa Cruz (twice), Stanford, Steven F. Austin State, SUNY Stony Brook, Texas, Wisconsin, Wyoming, and Yale.

(b) Other Institutions and Observatories:

Anglo-Australian Observatory (Sydney, Australia), Crimean Astrophysical Observatory (Ukraine), European Southern Observatory (Munich, Germany), Durham University (England), Fesenkov Astrophysical Institute (Almaty, Kazakhstan), Institute of Astronomy (Cambridge, England, twice), Institute of High-Energy Physics, Beijing (China), Kitt Peak National Observatory (USA), Mt. Maidanak Observatory (Uzbekistan), Observatoire de Paris (Meudon, France), NASA Goddard Space Flight Center (USA, twice), Royal Observatory Edinburgh (Scotland), Royal Greenwich Observatory (England), Shanghai Observatory (China), Space Telescope Science Institute (USA), Special Astrophysical Observatory (Russia), Ulug-Beg Astronomical Institute (Tashkent, Uzbekistan), Universitat Bonn/Max Planck Institute (Germany),

RESEARCH GRANTS (Principal Investigator)

1987-88 NASA + Univ. of Michigan “Observations of Unique Fe II Emitting Quasars” \$15,457.

1987-89 Rackham Grant (Univ. of Michigan) “Observations of the Violent Deaths of Stars and an Estimate of the Size Scale of the Universe” \$9,265.

1988-89 NASA “Observations of Unique Fe II Emitting Quasars” \$8,500.

1989-90 NASA “Sizes and Kinematics of Emission Line Regions in Low Luminosity Quasars” \$20,000.

1991-93 NASA “Combined *ROSAT* and *IUE* observations of Seyfert galaxies”. \$16,000.

1993-94 NSF/AAS/REU, “CCD Photometry of Supernovae and Seyfert Galaxies”, \$4516.

1993-96 NSF and extensive matching, “Undergraduate Teaching Observatory Telescope”, (D. J. Taylor, Co-I). Total project cost \$85,000 (est.).

1995- 2002 NASA "A Study of Emission Line Profiles in Low Redshift Quasars",
\$74,000.

1997-2002 NASA "Mrk 42 and Mrk 957: ASCA X-ray Observations of Two Extreme
Narrow-Line Strong Fe II Emitting Quasars", (with W. Niel Brandt), \$17,800.

2000-02 NASA-IDEA "Quasars and Supermassive Black Holes" (with J. A. Dunn),
\$4,900

2002 – 2003 Undergraduate Creativity and Research Experiences, (University of
Nebraska), "Observations of Quasars", \$4,000

2003 – Layman Fund (University of Nebraska), "Supermassive Black Holes", \$6500

2003 – 2004 Undergraduate Creativity and Research Experiences (University of
Nebraska), "Observations of Quasars", \$6,200

2003 – 2005 NASA "A Detailed Photoionization Study of the Broad-Line Region of NGC
5548" (with Stephanie A. Snedden), \$62,000

2003 – 2008 NSF "Variability of Active Galactic Nuclei" \$435,611

2004 – 2005 Undergraduate Creativity and Research Experiences (University of
Nebraska), "Observations of Quasars", \$6,400

2005 – 2006 Undergraduate Creativity and Research Experiences (University of
Nebraska), "Observations of Quasars", \$2,000

2006 – 2007 Undergraduate Creativity and Research Experiences (University of
Nebraska), "Observations of Quasars", \$2,000

2007 – 2009 NASA "Dust and the Far-UV Spectral Energy Distribution of AGNs"
\$120,150

My research has also received additional support from the Howard Hughes Foundation,
Nebraska EPSCoR, the University of Nebraska Research Council, and the University of
Nebraska Academic Senate.

RESEARCH BIBLIOGRAPHY

[Names of student co-authors are followed by an asterisk]

There are 4300 citations of these papers, including over 1300 citations of first-authored papers (figures from NASA ADS, August 2007; citation figures in the on-line *ISI Web of Science* are ~ 5 to 15% lower for any given paper).

PAPERS IN REFEREED JOURNALS (INCLUDING PAPERS SUBMITTED OR IN PRESS)

72. Gaskell, C. M., Klimek, E. S.*, and Nazarova, L. S. "NGC 5548: the AGN Energy Budget Problem and the Geometry of the Broad-Line Region and Torus", submitted to *Astrophys. J.* (2007)
71. Snedden, S. A.* and Gaskell, C. M. "Evidence for Two Kinematically Distinct Emission Line Producing Regions in Active Galactic Nuclei", submitted to *Astrophys. J.*
70. Chonis, T. S.* and Gaskell, C. M. "Setting UBVRI Photometric Zero-Points Using Sloan Digital Sky Survey ugriz Magnitudes", submitted to *Astron. J.*
69. Gaskell, C. M. and Benker, A. J.* "Reddening and Ultraviolet Extinction Curves from Hubble Space Telescope Spectra", submitted to *Astrophys. J.*
68. Gaskell, C. M., Goosmann, R. W., Merkulova, N. I., Shakhovskoy, N. M., and Shoji, M.* "Discovery of Polarization Reverberation in NGC 4151" to appear in *Astrophys. J. Letts.* (2007)
67. Snedden, S. A.* and Gaskell, C. M. "The Case for an Optically-Thick High-Velocity Broad-Line Region", *Astrophys. J.* **668**, 000 (2007) [astro-ph]
66. Arav, N. ... Gaskell, C. M. et al. "Chemical Abundances in AGN Environment: X-Ray/UV Campaign on the MRK 279 Outflow" *Astrophys. J.* **658**, 829 (2007)
65. Goosmann, R. W.* and Gaskell, C. M. "Modeling optical and UV polarization of AGNs I. Imprints of individual scattering regions", *Astron. & Astrophys.* **465**, 129 (2007)
64. Ganguly, R. ... Gaskell, C. M., et al. "Hubble Space Telescope Ultraviolet Spectroscopy of 14 Low-Redshift Quasars", *Astrophys. J.* **133**, 479 (2007)

63. Costantini, E., ... Gaskell, C. M., ... Klimek, E. S.* and Hedrick, C. H.* "X-Ray/Ultraviolet Observing Campaign of the Markarian 279 Active Galactic Nucleus Outflow: a close look at the absorbing/emitting gas with *Chandra*-LETGS" *Astron. & Astrophys.* **461**, 121 (2007)
62. Doroshenko, V.T., Sergeev, S. G., Gaskell, C. M., Golybinskii, Yu. B., Klimek, E. S.*, Sergeeva, E. A. "Optical Monitoring of the Narrow-Line Seyfert 1 Galaxy Ark 564 from 1987 to 2004", *Astron. Rep.* **50**, 708 (2006)
61. Gabel, J. R., Arav, N., Kaastra, J. S., Kriss, G. A., Behar, E., Costantini, E., Gaskell, C. M., Korista, K. T., Laor, A., Paerels, F., Proga, D., Quijano, J. K., Sako, M., Scott, J. E., and Steenbrugge, K. C. "X-ray/UV Observing Campaign on the Mrk 279 AGN Outflow: A Global Fitting Analysis of the UV Absorption", *Astrophys. J.*, **623**, 85 (2005).
60. Gaskell, C. M., Goosmann, R. W.*, Antonucci, R. R. J. and Whyson, D.* "The Nuclear Reddening Curve for Active Galactic Nuclei and the Shape of the Infra-Red to X-Ray Spectral Energy Distribution", *Astrophys. J.* **616**, 147 (2004).
59. Gaskell, C. M. "Lognormal X-ray Flux Variations in an Extreme Narrow-Line Seyfert 1 Galaxy", *Astrophys. J. Lett.* **612**, L21 (2004).
58. Nazarova, L. S., Bochkarev, N. G. & Gaskell, C. M. "Analysis of the Broad Emission Lines Profiles in the Active Galactic Nucleus 3C 390.3", *Astron. Astrophys. Trans.*, **23**, 343 (2004).
57. Klimek, E. S.*, Gaskell, C. M. & Hedrick, C. H.* "Optical Variability of Narrow-Line Seyfert 1 Galaxies", *Astrophys. J.* **609**, 69 (2004).
56. Fu, H.*, Li, Z. Y., Leung, K. C., Zhang, Z. S., Li, Z. L., and Gaskell, C. M. "A Photometry Campaign for IR Geminorum in Quiescence", *Chinese J. Astron. Astrophys.*, **4**, 88 (2004).
55. Gaskell, C. M. and Klimek, E. S.*, "Variability of Active Galactic Nuclei from the Optical to X-ray Regions" *Astron. Astrophys. Trans.*, **22**, 661 (2003)
54. Shemmer, O., ... Crowley, K. A.* , ... Gaskell, C. M., George, T. A.*, Hiller, M. E.*, Jewell, T. L.* , ... Klimek, E. S.* , ... Peterson, B. W.* , et al. "Multiwavelength Monitoring of the Narrow-Line Seyfert 1 Galaxy Arakelian 564. III. Optical Observations and the Optical-UV-X-Ray Connection", *Astrophys. J.*, **561**, 162 (2001).
53. Dietrich, M., Bender, C. F.*, Bergmann, D. J.*, Bills, T. E.* , ... Gaskell, C. M., Gutzmer, D. D.*, Grove, R.*, Hiller, M. E.* , ... Klimek, E. S.* , Lund, C.* , ...

- Pebbley, S.*., Poulsen, M. A.*., et al. "A Spectroscopic and Photometric Study of Short-Timescale Variability in NGC 5548", *Astron & Astrophys*, **371**, 79 (2001)
52. Gaskell, C. M. "A Look At What Is (And Isn't) Known About Quasar Broad Line Regions And How Narrow-Line Seyfert Is Fit In" *New Astron. Rev.*, **44**, 564 (2000).
51. Snedden, S. A.* and Gaskell, C. M. "The Effect of Abundance Variations on Estimates of the Densities of Broad Line Region Clouds in Quasars", *Astrophys. J. (Letters)*, **521**, L91 (1999).
50. O'Brien, P. T. *et al.*, "Steps Toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei: XIII. Ultraviolet Observations of the Broad-Line Radio Galaxy 3C 390.3," *Astrophys. J.*, **509**, 1630 (1998).
49. Collier, S. J., . . . Gaskell, C. M., . . . Snedden, S. A.* , *et al.*, "Steps toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei. XIV. Intensive Optical Spectrophotometric Observations of NGC 7469," *Astrophys. J.*, **500**, 162 (1998).
48. Dietrich, M., . . . Francis, O. P.* . . . Gaskell, C. M., . . . Pebbley, S. P.* , . . . Snedden, S. A.* , *et al.* "Steps toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei. XII. Ground-based Monitoring of 3C 390.3," *Astrophys. J. Suppl.*, **115**, 185 (1998).
47. Wanders, I., . . . Gaskell, C. M., . . . Snedden, S. A.* , *et al.*, "Steps toward Determination of the Size and Structure of the Broad-Line Region in Active Galactic Nuclei. XI. Intensive Monitoring of the Ultraviolet Spectrum of NGC 7469," *Astrophys. J. Suppl.*, **113**, 69 (1997).
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45. Edelson, R., *et al.* "Multiwavelength Observations of Short Time-Scale Variability in NGC 4151. IV. Analysis of Multiwavelength Continuum Variability", *Astrophys. J.*, **470**, 364 (1996).
44. Crenshaw, D. M. *et al.* "Multiwavelength Observations of Short Time-Scale Variability in NGC 4151. I. Ultraviolet Observations", *Astrophys. J.*, **470**, 322 (1996)
43. Gaskell, C. M. "Evidence for Binary Orbital Motion of a Quasar Broad-Line Region", *Astrophys. J.*, **464**, L107 (1996)

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41. Reichert, G. A. *et al.* "Steps Toward Determination of the Size and Structure of the Broad Line Region in Active Galactic Nuclei. V. Intensity Variations of the Ultraviolet Continuum and Emission Lines in NGC 3783", *Astrophys. J.*, **425**, 582 (1994).
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39. Filippenko, A. V., Richmond, M. W., Branch, D., Gaskell, C. M., Herbst, W., Ford, C. H., Treffers, R. R., Ho, L. C., Matheson, T., Dey, A., Sargent, W. L. W., Small, T.A. and van Breugel, W. J. M. "SN 1991bg in the Elliptical Galaxy NGC 4373", *Ast. J.* **104**, 1543 (1993).
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35. Cheng, F.-H., Gaskell, C. M. and Koratkar, A. P.* , "The Shape of the Ultraviolet Continuum of Quasars and Intergalactic Dust", *Astrophys. J.*, **370**, 487 (1991).
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32. Peterson, B. M. *et al.* "Steps toward Determination of the Size and Structure of the Broad Line Region in Active Galactic Nuclei. II. An Intensive Study of NGC 5548 at Optical Wavelengths" *Astrophys. J.*, **368**, 119, (1991).

31. Koratkar, A. P. * and Gaskell, C. M. "Structure and Kinematics of the Broad Line Region in Active Galaxies from IUE Variability Data" *Astrophys. J. Suppl.*, **75**, 719 (1991).
30. Clavel, J. *et al.* "Steps Toward Determination of the Size and Structure of the Broad Line Region in Active Galactic Nuclei. I. An Eight Month Monitoring Campaign of NGC 5548 with the IUE", *Astrophys. J.*, **366**, 64 (1991).
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28. Koratkar, A. P. * and Gaskell, C. M. "Emission Line Variability of Fairall 9: Determination of the Size of the Broad-Line Region and the Direction of Gas Motion". *Astrophys. J.*, **345**, 637, (1989).
27. Gaskell, C. M., "A New Planet Around SN 1987A?", *Nature*, **338**, 121 (1989).
26. Baldwin, J. A., Wampler, E. J. and Gaskell, C. M. "Emission-Line Properties of Optically and Radio-Selected Complete Quasar Samples", *Astrophys J.*, **338**, 630 (1989).
25. Gaskell, C. M., "Direct Evidence for Gravitational Domination of the Motion of Gas Within One Light-Week of the Central Object in NGC 4151 and the Determination of the Mass of the Probable Black Hole", *Astrophys J.*, **325**, 114, (1988).
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12. Wampler, E. J., Gaskell, C. M., Burke, W. L. and Baldwin, J. A. "Spectrophotometry of 2 complete samples of flat radio spectrum quasars" *Astrophys. J.*, **276**, 403 (1984).
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