

MARK WHITTLE – CURRICULUM VITAE

- ADDRESS : Department of Astronomy,
University of Virginia,
Charlottesville, VA 22903, U.S.A.
Tel. (434) 924 4900. e-mail : dmw8f@virginia.edu
- BORN : March 30, 1956, Harrogate, Yorkshire, England.
- EDUCATION : Oxford University, Magdalen College, 1974–77.
B.A. Honors in Physics, First Class.
Cambridge University, Corpus Christi College, 1977–82.
Ph.D. in Astronomy, April 1982.
- PRIZES : Open Scholarship to Magdalen College Oxford, 1973.
Jex Blake Prize, Magdalen College Oxford, 1975.
Oxford University Johnson Memorial Prize for 15,000 word essay.
Title : “The Solar Neutrino Problem”.
Oxford University Practical Prize for “The most outstanding
experimental work of the year”.
University of Virginia : Harrison Prize (1999)
“Outstanding Academic Advisor”
- FELLOWSHIPS : SERC Graduate Student Award, 1977–81.
Isaac Newton Studentship, 1981.
Lindemann Trust Post Doctoral Fellowship, 1982.
NATO Post Doctoral Fellowship, 1982–1984.
Jesus College Cambridge Research Fellowship, 1984–1986.
- EMPLOYMENT : 1973 – 74 (pre-university) : Rutherford High Energy Physics
Laboratory, Harwell, England. Assistant Scientific Officer
in the Neutron Beam Research Unit
1982 – 83 : Steward Observatory, University of Arizona.
Lindemann and NATO Post Doctoral Fellow.
1983 – 85 : Institute of Astronomy, Cambridge University, UK.
Jesus College Cambridge Research Fellow.
1985 – 86 : Steward Observatory, University of Arizona.
NATO Post Doctoral Fellow.
1986 – 92 : Department of Astronomy, University of Virginia.
Assistant Professor.
1992 – 99 : Associate Professor.
1999 – 08 : Full Professor.
- SOCIETIES : Royal Astronomical Society.
American Astronomical Society.
International Astronomical Union.
- RESEARCH : Active Galactic Nuclei,
Internal Dynamics of Galaxies,
Star Formation in Galaxies,
Cosmology.

NATIONAL REVIEW PANELS

- Kitt Peak National Observatory, Telescope Allocation Committee
1991 – 1994
- Hubble Space Telescope, Time Allocation Committee.
1993 AGN panel
1997 AGN panel (deputy chair)
1998 Galactic Structure and Kinematics Panel (deputy chair)
2007 Extragalactic panel
(invited to AGN panel 1991 & 1994 but declined due to schedule conflicts).
- National Science Foundation
1998 Extragalactic Astronomy and Cosmology Theory Panel
2004 Extragalactic Astronomy, external reviewer.
2006 Extragalactic Astronomy Panel (Chair).
(invited to Extragalactic panel 2002, 2003 & 2008, declined due to schedule conflicts)
- AXAF Time Allocation Committee
1998 Galaxies and Clusters panel

UNIVERSITY SERVICE

- University Judicial Review Board (1998–2004).
- Faculty of Arts & Sciences Steering Committee (2003–2006).
- International Center Advisory Board (1996–2000).
- Astronomy Representative on Faculty Forum for Scientific Research (1997–1999).
- Representative for Graduate Scholarship to Churchill College Cambridge (1987–present).
- Arts & Sciences Faculty Campaign Board (2006–present)
- Jefferson Scholars Admissions Committee (1994–present).
- Jefferson Fellowship Committee (2007–present).

DEPARTMENT SERVICE

- Director of Undergraduate Astronomy Program : 1991–1992, 1995–2002.
- Undergraduate Majors' Advisor : 1995–2002
- Visitors Committee : 1994–95
- Colloquium Organiser : 1989; 1990–93; 2003
- Observatory Committee : 1989–92; 1998–2001
- New Telescope Project Committee : 1998–2000
- Faculty Hire Committee : 1994
- Department Chair Appointment Committee : 1994
- 10 Year Program Review Committee : 1997
- Teaching Committee : 1993–present
- PhD and Master's Qualifying Exams : 1987–90; 1993, 2006–present
- Chair Graduate Admissions : 2004–present

PUBLIC SERVICE

- Organize bi-annual open night at Fan Mtn Observatory
- Give 2–5 public talks per year
- Give 1–3 presentations at elementary, middle, or high schools per year
- Regular judge in local schools' science fair

TELESCOPE TIME AWARDED

While at UVa, I have been awarded time for 41 observing projects on national facilities

- 7 4^m class (AAT; CFHT; KPNO 4^m; total 20 nights)
- 13 2^m class (La Palma INT; KPNO 2.1^m; total 49 nights)
- 9 1^m class (KPNO Burrell Schmidt; KPNO 0.9^m; total 48 nights)
- 9 HST projects (7 as Principal Investigator)
- 3 others (IUE; VLA)

GRANTS AWARDED

- 1987–88 NSF \$243,000 Co-I (with Ianna, O’Connell, & Thuan)
A Microdensitometer for Astronomy at the University of Virginia
- 1987–89 NASA \$91,000 Co-I (with Ward, Wilson, Antonucci, Kinney)
A Multifrequency Investigation for Evidence of Anisotropic Continuum Emission in Seyfert Galaxies
- 1988–90 NASA \$36,600 PI (Co-I Moss).
Star Formation in Cluster Galaxies : A Combined IR and H α Study
- 1990–91 NASA \$12,500 PI (Co-Is Ward, Wilson, Antonucci, Kinney)
Anisotropic Continuum Emission in Seyferts : IUE Contribution to a Multi-Frequency Study
- 1991–92 NASA \$14,000 PI (Co-Is Ward, Wilson, Antonucci, Kinney)
Anisotropic Continuum Emission in Seyferts : IUE Contribution to a Multi-Frequency Study
- 1991–93 NASA \$55,638 PI (Co-I Wilson)
HST Imaging of Markarian 78
- 1994–95 NASA \$55,761 PI (Co-I Wilson)
HST FOS Spectroscopy of Markarian 78
- 1995–96 NASA \$65,000 CoI (with Wilson, Ferland, & Mulchaey)
Energy Inputs to the Narrow Line Region of Active Galaxies
- 1997–99 NASA \$68,900 PI (Co-Is Wilson & Nelson)
STIS Spectroscopy of Markarian 78
- 1999–02 NASA \$45,200 PI (Co-Is Wilson, & Nelson)
Jet Acceleration of Narrow Line Region Gas
- 2000–03 NASA \$47,300 PI (sole proposer)
The Origin of Blue Wings on NLR Line Profiles
- 2006–08 NASA \$60,195 PI (Co-Is Rosario, & Wilson)
Radio Quiet Jet Flow in Mkn 34

TEACHING

Cambridge, 1977 – 85 :

- Graduate Courses : Contributed lectures in Graduate course : “Emission Line Objects”,
and “Radiation Mechanisms”, (1984 – 1985).
Physics Tutorials : Weekly tutorials with 6 physics undergraduates (1983 – 1985).
Physics Labs. : Supervised undergraduate laboratory work (two terms).
Astronomy 105 : University of Maryland Overseas Division, Lakenheath Airbase
General Astronomy : Adult Education Classes (Cambridge Extra-Mural Studies, twice).

Virginia, 1987 – 2008 :

- ASTR 121 : Introduction to the Sky and the Solar System, (10 semesters).
ASTR 124 : Introduction to Stars, Galaxies, and the Universe (14 semesters).
ASTR 130 : Introduction to Observational Astronomy, (12 semesters).
ASTR 395 : Tutorial in a subject of the student’s choice, (15 semesters).
ASTR 498 : Senior Research Thesis, (16 semesters).
ASTR 553 : Extragalactic Astronomy I (3 semesters)
ASTR 554 : Extragalactic Astronomy II (2 semesters)
ASTR 895 : Graduate Research Discussion (3 semesters).

The Teaching Company: 2008 :

- Wrote and presented a 36 half-hour Lecture course:
“Cosmology: The Origin and History of Our Universe”.
Produced and marketed by The Teaching Company. (Release date: Sept 2008).

ACADEMIC ADVISING

- First Year Advisor (20 – 25 students) : 1987 – 89, 1998, 2003 – 04
Astronomy Majors (25 – 35 students) : 1991 – 92, 1995 – 2002
Recipient of Harrison Prize for “Outstanding Academic Advisor” : 1999

SUPERVISED RESEARCH

Senior Undergraduate Theses (ASTR 498) :

- | | | |
|--------------|------|---|
| J. Golder | 1988 | “Modelling Objective Prism Spectra of H α Emitting Galaxies” |
| W. Walsh | 1988 | “The Luminosity Dependence of Emission Line Ratios in AGN” |
| E. Olsen | 1990 | “Astrometry of Radio Galaxies with One Sided Jets” |
| M. Rawlings | 1991 | “The Link Between Broad and Narrow Line Kinematics in AGN” |
| C. Mullis | 1993 | “The ENLR of Markarian 78” |
| C. Plett | 1995 | “Gas Dynamics in the Broad Line Region of AGN” |
| G. Becker | 1998 | “Analysis of HST slitless spectra” |
| K. Wanschura | 1999 | “Teaching Astronomy to young children” (Astro/Drama major) |
| M. Yench | 2000 | “The Extended Blue Continuum in AGN” |
| E. Swanson | 2002 | “Dust Distributions and Radial Gas Flows in Seyfert Galaxies” |
| M. Caldwell | 2006 | “Friedman Solutions in Cosmology” |
| M. Whiting | 2007 | “Cosmic Star Formation History” |

Masters and PhD Theses :

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| D. Blank | 1989 | “Seyfert Galaxy Evolution” |
| R. Gelderman | 1989 | “Kinematics and Excitation of Ionized Gas in Markarian 1066” |
| R. Gelderman | 1993 | “An Optical Study of Compact Steep Spectrum Radio Sources” |

C. Nelson	1994	“The Spheroidal Component of Seyfert Galaxies”
J. Silverman	1998	“Jet Driven Velocities in Markarian 78”
C. Ashman	1998	“Origin of UV Continuum in Seyfert 2 Galaxies”
D. Rosario	2000	“Ionization Mechanisms in Markarian 78”
J. Silverman	2004	“Evolution of X-ray Selected Quasars”
D. Rosario	2006	“Jet-Gas Interactions in 5 Seyfert Galaxies”
G. Privon	current	“Evolution of Narrow Line Regions in High-z Quasars”

PUBLICATIONS (* indicates most important 20)

- 1) “Narrow Line Profiles from Active Galaxies”, Whittle, M., 1982, *Pub. Ast. Soc. Pac.*, 94, 760.
- 2) “Photoionisation and Kinematic Modelling of the Narrow Line Region”, Whittle, M., 1982, *Pub. Ast. Soc. Pac.*, 94, 760.
- 3) “An Objective Prism Survey of Emission Line Galaxies in Nearby Abell Clusters”, Moss, C., Goeke, J., and Whittle, M., 1984, in *Clusters and Groups of Galaxies*, Riedel, Ed. Mardirassian, F., *et al.*
- * 4) “The Narrow Line Region of Active Galaxies I : Nuclear [OIII] Profiles”, Whittle, M., 1985, *Mon. Not. R. astro. Soc.*, 213, 1–32.
- * 5) “The Narrow Line Region of Active Galaxies II : Relations Between [OIII] Profile Shape and other Properties”, Whittle, M., 1985, *Mon. Not. R. astro. Soc.*, 213, 33–58.
- * 6) “The Narrow Line Region of Active Galaxies III : Profile Comparisons”, Whittle, M., 1985, *Mon. Not. R. astro. Soc.*, 216, 817–855.
- 7) “Recent Spectral Variations in the Active Nucleus of NGC 1566”, Alloin, D., Pelat, D., Phillips, M.M., and Whittle, M., 1985, *Astrophys. J.*, 288, 205–220.
- 8) “The Velocity Field and Radio Structure of the Active Galaxies NGC 5643 and NGC 7582”, Morris, S.L., Ward, M.J., Whittle, M., Wilson, A.S., and Taylor, K., 1985, *Mon. Not. R. astro. Soc.*, 216, 193–217.
- 9) “Survey of Nearby Abell Clusters for Narrow Emission Line Galaxies : Abell 347 and Abell 1367”, 1985, Moss, C., and Whittle, M., *Bull. Am. Ast. Soc.*, 16, 881.
- 10) “The Velocity Field in the Active Galaxy NGC 7582”, Morris S.L., Ward, M.J., Whittle, M., Wilson, A.S., and Taylor, K., 1985, *Bull. Am. Ast. Soc.*, 16, 916.
- 11) “Extended [OIII] Emission Associated with Nuclear Radio Lobes in the Seyfert Galaxy NGC 5929”, Whittle, M., Haniff, C.A., Ward, M.J., Meurs, E.J.A., Pedlar, A., Unger, S.W., Axon, D.J., and Harrison, B.A., 1986, *Mon. Not. R. astro. Soc.*, 222, 189–200.
- 12) “Cloud Models for the Nuclei of Active Galaxies : A Distribution Function Description”, Whittle, M., and Saslaw, W.C., 1986, *Astrophys. J.*, 310, 104–120.
- 13) “Extended Narrow Line Region Morphology and its Implications for a Beamed Ionizing Radiation Field in Seyfert Galaxies”, Whittle, M., Unger, S.W., Pedlar, A., Axon, D.J., Meurs, E.J.A., Ward, M.J., 1986, “*Supermassive Black Holes*” Riedel, Ed. Kafatos, M.
- 14) “Radio Lobes and [OIII] Profile Substructure in Seyfert Galaxies”, Whittle, M., Pedlar, A., Meurs, E.J.A., Unger, S.W., Axon, D.J., Ward, M.J., 1986, *Bull. Am. Ast. Soc.*, 18, 1047.
- 15) “Kinematics and Ionization of the Extra-nuclear Gas in the Seyfert Galaxy NGC 1068”, Baldwin, J.A., Wilson, A.S., and Whittle, M., 1986, *Bull. Am. Ast. Soc.*, 18, 1001.

- 16) “Kinematics and Ionization of the Extra-Nuclear Gas in Active Galaxies III : The Extra-nuclear Properties of NGC 1068”, Baldwin, J.A., Wilson, A.S., and Whittle, M., 1987, *Astrophys. J.*, 319, 84–104.
- * 17) “The Extended Narrow Line Region in Seyfert Galaxies : Evidence for a Collimated UV Field ?”, Unger, S.W., Pedlar, A., Axon, D.J., Whittle, M., Meurs, E.J.A., and Ward, M.J., 1987, *Mon. Not. R. astro. Soc.*, 228, 671–679.
- 18) “Radio Jets as Probes of Galactic Nuclear Structure”, Saslaw, W.C., and Whittle, M., 1988, *Astrophys. J.*, 325, 142–147.
- * 19) “Radio Lobes and [OIII] Profile Sub-structure in Seyfert Galaxies”, Whittle, M., Pedlar, A., Meurs, E.J.A., Unger, S.W., Axon, D.J., and Ward, M.J., 1988, *Astrophys. J.*, 326, 125–145.
- * 20) “An objective Prism H α Survey of Nearby Clusters of Galaxies – I : Abell 347 and Abell 1367”, Moss, C., Whittle, M., and Irwin, M.J., 1988, *Mon. Not. R. astro. Soc.*, 232, 381–406.
- 21) “Radio Ejection and Broad Forbidden Emission Lines in the Seyfert Galaxy NGC 7674”, Unger, S.W., Pedlar, A., Axon, D.J., Graham, D.A., Harrison, B.A., Saikia, D.J., Whittle, M., Meurs, E.J.A., Dyson, J.E., and Taylor, D., 1988, *Mon. Not. R. astro. Soc.*, 234, 745–754.
- 22) “The interaction of Radio Jets with the Narrow Line Region in Seyfert Galaxies”, Whittle, M., Pedlar, A., Meurs, E.J.A., Unger, S.W., Axon, D.J., and Ward, M.J., 1988, “*Active Galactic Nuclei*” Eds., Miller, H.R., and Wiita, P.J., (Springer-Verlag).
- 23) “[OIII] - Line Emission Associated with Nuclear Radio Components in Seyfert Galaxies”, Meurs, E.J.A., Whittle, M., Pedlar, A., Unger, S.W., Axon, D.J., and Ward, M.J., 1988, “*The Physics of Compact Objects : Theory versus Observations*”, COSPAR/IAU Symposium, Sofia, Italy.
- 24) “[OIII] - Line Emission Associated with Nuclear Radio Components in Seyfert Galaxies”, Meurs, E.J.A., Whittle, M., Pedlar, A., Unger, S.W., Axon, D.J., and Ward, M.J., 1988, *10th European Regional Astronomy Meeting of the IAU*, Prague, Czechoslovakia.
- 25) “Gravitational Acceleration and Forbidden Line Widths in Seyfert Galaxies”, Whittle, M., 1988, *IAU Symposium 134 : “Active Galactic Nuclei*”, Eds. Osterbrock, D.E., and Miller, J.S.
- 26) “Anisotropic Ionising Continuum Emission in AGNs”, Meurs, E.J.A., Unger, S.W., Pedlar, A., Axon, D.J., Whittle, D.M., and Ward, M.J., 1988, in it Conference on BL Lac Objects : 10 years after, Como, Italy.
- * 27) “Association Between Radio and Optical Emission in AGN”, Whittle, M., 1989, Invited Review in *Extranuclear Activity in Galaxies*, ESO, Munich, Eds. Fosbury, R.A.E., and Meurs, E.J.A.
- 28) “Radio and Optical Emission Associated with Nuclear Activity in in the Seyfert Galaxy Markarian 78”, Pedlar, A., Meaburn, J., Axon, D.J., Unger, S.W., Guerrine, N., Whittle, M., Meurs, E.J.A., Ward, M.J. 1989, *Mon. Not. R. astro. Soc.*, 238, 863–879.

- 29) “The Jets of 3C 120”, Axon, D.J., Unger, S.W., Pedlar, A., Meurs, E.J.A., Whittle, M., and Ward, M.J., 1989, *Nature*, 341, 631–633.
- 30) “Gravitational and Jet Induced Velocities in the Narrow Line Region of Active Galaxies”, Whittle, M., 1989, *Highlights of Astronomy*, 8, 423. Ed. McNally, D.
- 31) “Radial Distribution of Emission-line Galaxies in Clusters”, Moss, C., Kembhavi, A.K., and Whittle, M., 1989, *Bull. Am. Ast. Soc.*, 20, 1102.
- 32) “Line Splitting and Jets in 3C 120”, Meurs, E.J.A., Axon, D.J., Unger, S.W., Pedlar, A., Whittle, D.M., and Ward, M.J., 1989, *Extranuclear Activity in Galaxies*, ESO, Munich, Eds. Fosbury, R.A.E., and Meurs, E.J.A.
- 33) “Absorption and Emission Line Kinematics in Seyfert Galaxies.” Nelson, C.H., and Whittle, D.M., 1989, *Bull. Am. Ast. Soc.*, 21, 1159.
- 34) “Kinematics and Excitation of Ionized Gas in Mkn 1066”, Gelderman, R., Whittle, D.M., and Wilson, A.S., 1989, *Bull. Am. Ast. Soc.*, 21, 1159.
- 35) “Anisotropic Ionising Continuum Emission in AGNs”, Meurs, E.J.A., Unger, S.W., Pedlar, A., Axon, D.J., Whittle, D.M., and Ward, M.J., 1989, in *Conference on BL Lac Objects : 10 years after*, Como, Italy.
- 36) “An H α Survey of Cluster Galaxies : Distribution of Spirals With High Star Formation Rates”, Moss, C., and Whittle, M., 1990, *Workshop on Superclusters and Clusters of Galaxies and Environmental Effects*, Sesto-Moso, Italy. Eds., Giuricin, G., Mardirossian, F., and Mezzetti, M.
- 37) “The Featureless Continua and Hydrogen Lines of Seyfert 2 Galaxies”, Kinney, A.L., Antonucci, R.R.J., Ward, M.J., Wilson, A.S., and Whittle, M., 1991, *Astrophys. J.*, 377, 100–114.
- 38) “An Optical Study of Compact Steep Spectrum Radio Sources” Gelderman, R., and Whittle, D.M., 1991, *Bull. Am. Ast. Soc.*, 22, 1301.
- 39) “The Origin of [OIII] Linewidth in Seyfert Galaxies”, Whittle, M., 1991, *Bull. Am. Ast. Soc.*, 23, 892–893.
- 40) “The Effect of Cluster Environment on Star Formation in Spirals”, Moss, C., and Whittle, M., 1991, *Relationships Between Active Galactic Nuclei and Starburst Galaxies*, Taipai Astrophysical Workshop, Taipai, Taiwan, Eds., Filippenko, A., and Sun, W.H.
- 41) “Gas Velocities in the Inner NLR : Virial with Inflow ?”, Whittle, M., 1991, *Testing the AGN Paradigm*, 2nd Annual Maryland Astrophysics Meeting, Eds., Holt, S., Neff S., and Urry, M.
- 42) “Star Formation Rates in Cluster and Field Spirals”, Moss, C., and Whittle, M., 1991, *Clusters and Superclusters of Galaxies*, NATO Advanced Study Institute, Cambridge, Eds., Colless, M.M., Babul, A., Edge, A.C., Johnstone, R.M., and Raychaudhury, S.

- * 43) “Virial and Jet Induced Velocities in Seyfert Galaxies I : A Compilation of Narrow Line Region and Host Galaxy Properties” Whittle, M., 1992, *Astrophys. J. Supp.*, 79, 49–75.
- * 44) “Virial and Jet Induced Velocities in Seyfert Galaxies II : Galaxy Rotation as Virial Parameter”, Whittle, M., 1992, *Astrophys. J.*, 387, 109–120.
- * 45) “Virial and Jet Induced Velocities in Seyfert Galaxies III : Galaxy Luminosity as Virial Parameter”, Whittle, M., 1992, *Astrophys. J.*, 387, 121–137.
- 46) “Ionized Gas Kinematics in LINER and Starburst Nuclei”, Whittle, M., 1992, *Bull. Am. Ast. Soc.*, 24, 1429.
- 47) “Spectroscopy of the Spheroidal Component in Seyfert Galaxies”, Nelson, C.N., and Whittle, M., 1992, *Bull. Am. Ast. Soc.*, 24, 1427.
- * 48) “An H α Survey of Cluster Spirals : Evidence for Tidally Induced Star Formation”, Moss, C. and Whittle, M., 1993, *Astrophys. J. (Letters)*, 407, L17–L20.
- 49) “Ionized Gas Kinematics in Seyfert, LINER, and Starburst Galaxies”, Whittle, M., 1993, Invited Review in *Nearby Active Galaxies*, Eds., Bechman, J., Colina, L., and Netzer, H., (Madrid; CIRS).
- 50) “Ionized Gas Kinematics in Active and Related Galaxies”, Whittle, M., 1993, Invited Review in “*Mass-Transfer Induced Activity in Galaxies*”, Ed. I. Shlosman, (Cambridge: CUP).
- 51) “The Link Between Galaxy Disturbance and Emission line Width in Seyfert Galaxies”, Nelson, C.H., and Whittle, M., 1993, in “*Mass-Transfer Induced Activity in Galaxies*”, Ed. I. Shlosman, (Cambridge: CUP).
- 52) “Stellar and Gaseous Kinematics in the Narrow Line Region of Seyfert Galaxies”, Nelson, C.H., and Whittle, M., 1993, *Bull. Am. Ast. Soc.*, 25, 1337–1338.
- * 53) “An Optical Study of Compact Steep-Spectrum Radio Sources I: The Spectroscopic Data”, Gelderman R., and Whittle, M., 1994, *Astrophys. J. Supp.*, 91, 491–505..
- * 54) “Multiwavelength Tests of the Dusty Torus Model for Seyfert Galaxies”, Mulchaey, J.S., Koratkar, A., Ward, M.J., Wilson, A.S., Whittle, M., Antonucci, R.R.J., Kinney, A.L., and Hurt, T., 1994, *Astrophys. J.*, 436, 586–598.
- 55) “Two Line-emitting Components in the Seyfert 2 Galaxy Mkn 1066”, Gelderman, R., Whittle, M., Nelson, C., Bower, G., Wilson, A.S., Mulchaey, J., and Morse, J., 1994, HST Symposium ‘*Emission Line Diagnostics*’.
- 56) “Stellar Absorption Lines and Nuclear Continuum in Seyfert Galaxies”, Nelson, C.H., and Whittle, M., 1994, *Bull. Am. Ast. Soc.*, 26, 1501–1502.
- 57) “Aligned Radio and Emission-Line Jets in the Type 2 Seyfert Galaxy Mkn 1066”, Bower, G., Wilson, A.S., Morse, J., Mulchaey, J., Gelderman, R., and Whittle, M., 1994, *Bull. Am. Ast. Soc.*, 26, 1505..

- 58) “Star Formation in Normal and Barred Cluster Spirals”, Moss, C., Whittle, M., Pesce, J.E., and Socas-Navarro, H., 1995, *Astrophys Letters and Communications*, 31, 215–219.
- 59) “Radio and Emission-Line Jets in the Type 2 Seyfert Galaxy MKN 1066 (UGC 2456)” Bower, G., Wilson, A.S., Morse, J.A., Gelderman, R., Whittle, M., and Mulchaey, J., 1995, *Astrophys. J.*, 454, 106–118.
- * 60) “Stellar and Gaseous Kinematics of Seyfert Galaxies I: Spectroscopic Data”, Nelson, C.H., and Whittle, M., 1995, *Astrophys. J. Supp.*, 99, 67–106.
- * 61) “Stellar and Gaseous Kinematics of Seyfert Galaxies II. The Role of the Bulge”, Nelson, C.H., and Whittle, M., 1996, *Astrophys. J.*, 465, 96–114.
- 62) “The Spheroidal Component of Seyfert Galaxies”, Nelson, C.H., Whittle, M., & MacKenty, J.W., 1996, in “Barred Galaxies and Circumnuclear Activity”, Nobel Symposium 98, Eds., Sandqvist, Aa., & Lindblad, P.O., Springer (Berlin Heidelberg New York) pp 157-164.
- 63) “Off-nucleus HST/FOS spectra of the two Seyfert 2 galaxies NGC 5929 and NGC 2110” Ferruit, P., Wilson, A.S., Mulchaey, J., Ferland, G., Whittle, M., and Simpson, C. 1997, *Bull. Am. Ast. Soc.*, 191, 78.01.
- 64) “Tidally-induced Star Formation in Cluster Galaxies”, 1997, Moss, C., and Whittle, M., *Rev. Mex. de Astro. Astrofis.*, 6, 145–147.
- * 65) “Tidally Induced Star Formation in Abell 1367”, Moss, C., Whittle, M., and Pesce, J.E., 1998, *Mon. Not. R. astro. Soc.*, 300, 205–220.
- 66) “Stellar and Gaseous Kinematics in Seyfert Galaxies”, C. H. Nelson, & M. Whittle, 1999, *A.S.P. Conf. Ser.*, 182, 53-56. Eds. D. R. Merritt, M. Valluri, J.A. Sellwood.
- 67) “Stellar Absorption Lines in the Spectra of Seyfert Galaxies” Nelson, C.H., and Whittle, M., 1999, *Adv. Space Res.*, 23, 891-894.
- 68) “Hubble Space Telescope/Faint Object Spectrograph Spectroscopy of Spatially Resolved Narrow-Line Regions in the Seyfert 2 Galaxies NGC 2110 and NGC 5929”, Ferruit, P., Wilson, A. S., Whittle, M., Simpson, C., Mulchaey, J. S., and Ferland, G. J., 1999, *Astrophys. J.*, 523, 147–162.
- 69) “An H α Survey of low-redshift Clusters: Implications for the Evolution of Disk Galaxies in a Cluster Environment”, Moss, C., and Whittle, M., 1999, *Bull. Am. Ast. Soc.*, 31, 1467.
- 70) “The Dependence of Tidally-Induced Star Formation on Cluster Density” Moss, C., and Whittle, M., 2000, *A.S.P. Conf. Ser.*, 215, 305–308.
- * 71) “An H α survey of eight Abell clusters: the dependence of tidally induced star formation on cluster density”, Moss, C., and Whittle, M., 2000, *Mon. Not. R. astro. Soc.*, 317, 667–686.

- 72) “Featureless Continua and Stellar Absorption Lines in the Nuclear Spectra of Seyfert Galaxies”, Nelson, C.H., and Whittle, M., 2000, *Bull. Am. Ast. Soc.*, 32, 1590.
- 73) “Seyfert Galaxies”, Whittle, M., 2001, Invited Review article in *Encyclopedia of Astronomy and Astrophysics*, Ed. Murdin, P. (IoP and Macmillan Press).
- 74) “Jet-Gas Interactions in the Seyfert Galaxy Markarian 78” Whittle, M., Wilson, A. S., Nelson, C. H., Rosario, D., and Silverman, J. D. 2002, *Rev. Mex. de Astro. Astrofis.*, 13, 230–235.
- 75) “Cluster galaxy infall and tidally-induced star formation”, Moss, C.M., and Whittle, M., 2003, *A.S.P. Conf. Ser.*, 297, 243–244.
- 76) “Star Formation in Seyfert Bulges”, Whittle, M., and Nelson, C.H., 2003, *A.S.P. Conf. Ser.*, 297, 433–435.
- * 77) “Jet–Gas Interactions in Markarian 78 — I : Morphology and Kinematics”, Whittle, M., and Wilson, A.S., 2004, *Astron. J.*, 127, 606–624.
- 78) “Ionization mechanisms in jet-dominated Seyferts: A detailed case study”, Rosario, D. J.; Whittle, M.; Silverman, J. D.; Wilson, A. S.; Nelson, C. H. 2004, in *The Interplay among Black Holes, Stars, and ISM in Galactic Nuclei*, IAU Symposium 222, p. 287–290.
- 79) “Seyfert Jets: Weak, Slow and Heavy”, Whittle, M.; Silverman, J. D.; Rosario, D. J.; Wilson, A. S.; Nelson, C. H. 2004, in *The Interplay among Black Holes, Stars, and ISM in Galactic Nuclei*, IAU Symposium 222, p. 299–302.
- * 80) “Jet–Gas Interactions in Markarian 78 — II : Ionization Mechanisms”, Whittle, M., Rosario, D.J., Silverman, J.D., Wilson, A.S., and Nelson C.H., 2005, *Astron. J.*, 129, 104–124.
- 81) “An H α survey of cluster galaxies - V. Cluster-field comparison for early-type galaxies” Moss, C., and Whittle, M., 2005, *Mon. Not. R. astro. Soc.*, 357, 1337–1347.
- 82) “O VI Asymmetry and an Accelerated Outflow in an Obscured Seyfert: FUSE and HST STIS Spectroscopy of Mrk 533”, Shastri, P., Hutchings, J., Murthy, J., Whittle, M., Wills, B. J., 2006, *Astrophys. J.*, 646, 76–84.
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