# **Curriculum Vitae & List of Publications**

### **Xanthopoulos Emily**

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**Born:** Toronto, 25 September 1962 **Citizenship:** Canadian and Greek

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### **EDUCATION**

York University, Canada:

1.PhD in Physics & Astronomy, June 1993

a. Project title: Broad band imaging of isolated and interacting Seyfert galaxiesb.Advisor: Dr. M. M. De Robertis

c. Publications from thesis:

i.Xanthopoulos & De Robertis 1991, AJ 102, 1980 ii.Xanthopoulos 1996, MNRAS 280, 6

York University, Canada:

2.MSc in Physics, June 1987

a. Project title: High proper motion stars in the center of our Galaxy

b. Advisors: Dr. M. M. De Robertis & Prof. Prince

University of Thessaloniki,, Greece: 3.**BSc in Physics**, May 1986

# **RESEARCH AREAS OF EXPERTISE**

Astronomy & Astrophysics — Observational extragalactic astrophysics, Astrophysics of Active Galactic Nuclei (Optical, Radio and X-ray observations), Gravitational lenses, Imaging and Spectroscopy of Seyfert galaxies, Jet-induced star formation in Seyfert galaxies, Cosmological parameters from Gravitational Lenses and Radio Surveys, Water Masers in Active Galaxies, Astronomy Databases

Imaging Science & Medical physics — Medical image analysis and development of novel imaging techniques, MRI physics

### **PROFESSIONAL EXPERIENCE – EMPLOYMENT HISTORY**

#### **Research and Teaching Pre-doctoral Assistantships**

#### 1986-1987:

**Research Assistant.** York University, Canada – Master's project 1987-1992:

**Research Assistant.** York University, Canada – PhD thesis & other research projects 1986-1987:

**Teaching Assistant.** York University, Canada – Demonstrator/marker in Physics labs 1988-1992:

**Teaching Assistant.** York University, Canada – Tutor/marker in Astronomy labs 1989-1990:

**Teaching Assistant.** York University, Canada – Demonstrator in labs of "Sound and Light" 1990-1991:

**Teaching Assistant.** York University, Canada – Marker in "Science & Technological Change" 1991-1992:

Teaching Assistant. York University, Canada - Marker in "Nature & Growth of Scientific Thought"

### **Postdoctoral Research and Teaching Positions**

#### 1993-1996:

**College Teacher.** English Academy, Greece – Physics Course Instructor and Lab Organizer 1993-1996:

**Researcher.** University of Thessaloniki, Greece – Seyfert galaxies 1996 (summer):

**Postdoctoral Researcher.** University of Thessaloniki, Greece – Government (PENED) funded: N-body simulations of interacting galaxies

1996-1998 (changed after six months to next position):

**Postdoctoral Researcher.** University of Crete, Greece – Government (PENED) funded: Optical observations of Globular Clusters

1997-2000:

**Postdoctoral Researcher.** Jodrell Bank Observatory, United Kingdom - European funded research through the training and mobility framework – (see below analytically for main responsibilities within the Consortium for European Research of Extragalactic Surveys (CERES) network) 1999 (3 lectures):

**Lecturer.** University of Manchester, United Kingdom – Seminars for the course "Frontiers in Astrophysics" general topic 'Active Galactic Nuclei' 2000 (3 lectures):

**Lecturer.** University of Manchester, United Kingdom– Seminars for the course "Frontiers in Astrophysics" general topic 'Gravitational lenses'

2001-2006 (changed to next position on December 1, 2003)

**Research Associate.** University of Manchester, United Kingdom – funded through the AstraZeneca Strategic Alliance Scheme to work on medical projects (in all areas and modalities of medical research) agreed by both parties (the University and Company) in order to develop novel image analysis techniques 2003-2005

**Postgraduate Researcher X & XI & Assistant Project Physicist.** University of California Davis funded position based at Lawrence Livermore National Laboratory – To work on follow-up

multiwavelength observations and spin-off research projects from the FIRST VLA radio survey (Active Galactic Nuclei, Gravitational Lenses, Binary Quasars, Cosmology etc). (**Position became:** 'Assistant Project Physicist' in January 2005)

#### 2006-present

'Assistant Project Physicist'. Participating guest of Lawrence Livermore National Laboratory

# PUBLICATIONS

### A. Astronomy publications

### **Publication Summary:**

1.Refereed Journal Papers: 28 (7 in the process of submission)

- 2. Papers in conference Proceedings & Abstracts: 23
- 3.Editor of conference proceedings: 1
- 4.Citation index: according to NASA (ADS) Astrophysics Data System to-date, the total number of citations to my published refereed papers is **487** (470 excluding self-citations)

5.My XML-RSS author feed: <u>http://adsabs.harvard.edu/cgi-bin/nph-abs\_connect?type=RSS&data\_type=RSS&cookie=42fecde7fb17634</u>

#### **Publications in refereed journals**

- 1.Xanthopoulos, E. and De Robertis, M. M. 1991, "Short time-scale variability in bright Seyfert galaxies", Pub.A.S.P, 103, 378.
- 2.Xanthopoulos, E. and De Robertis, M. M. 1991, "Broad-band imaging of isolated (?) Seyfert galaxies?" J.R.A.S.C, 85, page 220.
- 3.Xanthopoulos, E. and De Robertis, M. M. 1991, "Broadband imaging of eight isolated (?) Seyfert galaxies", A. J., 102, 1980.
- 4.**Xanthopoulos, E.** 1996, "VRI CCD surface photometry of Seyfert 1, Seyfert 2 and intermediate Seyfert-type galaxies", M.N.R.A.S, 280, 6.
- 5.Xanthopoulos, E., Browne, I. W. B., King, L. J., Koopmans, L. V. E., Jackson, N. J., Marlow, D. R., Patnaik, A. R., Porcas, R. W., Wilkinson, P. N., 1998, "The new gravitational lens system B1030+074", M.N.R.A.S, 300, 649.
- 6.Hatzidimitriou, D., Papadakis, I., Croke, B. F. W., Papamastorakis, I., Paleologou, E. V., Xanthopoulos, E., Haerendel, G., 1999, "The Age of NGC 6426, a Metal-poor Globular Cluster in the Galactic Halo", A.J., 117, 3059.
- 7.Koopmans, L. V. E., de Bruyn, A. G., Xanthopoulos, E., Fassnacht, C. D., 1999, "A time-delay determination from VLA light curves of the CLASS gravitational lens B1600+434", A.& A., 356, 391.

- 8.Biggs, A., Xanthopoulos, E., Browne, I. W. B., Koopmans, L. V. E., Fassnacht, C. D., 1999, "VLA 8.4 GHz monitoring observations of the CLASS gravitational lens B1933+503", M.N.R.A.S, 318, 73.
- 9.Jackson, N. J., Xanthopoulos, E., Browne, I. W. B., 2000, "NICMOS images of JVAS/CLASS gravitational lens systems", M.N.R.A.S, 311, 389.
- 10.**Xanthopoulos, E**., 2000, "Narrow-band emission-line and continuum images of Seyfert galaxies", Ap.S.S, 274, issue 3, 523.
- 11.Phillips, P. M., Norbury, M., Browne, I. W. A., Jackson, N., Wilkinson, P. N, Blandford, R. D., de Bruyn, A. G., Fassnacht, C. D., Helbig, P., Koopmans, L., Mao, S., Marlow, D., Myers, S., Pearson, T., Readhead, A., Rusin, D., **Xanthopoulos, E.**, 2000, "A new quadruple gravitational lens system: CLASS B0128+437", M.N.R.A.S., 319, L7.
- 12.Koopmans, L. V. E, de Bruyn, A. G., Fassnacht, C. D., Marlow, D. R., Rusin, D., Blandford, R. D., Browne, I. W. A., Helbig, P., Jackson, N. J., Myers, S. T., Pearson, T. J., Readhead, A. C. S., Wilkinson, P. N., **Xanthopoulos, E.**, Hoekstra, H., 2000, "B0827+525: `Dark' lens or binary quasar?", A&A, 361, 815.
- 13.Xanthopoulos, E., Combes, F., Wiklind, T., 2001, "IRAM submillimeter observations of CLASS gravitational lenses", M.N.R.A.S., 325, 273.
- 14.Snellen, I. A. G., McMahon, Denett-Thorpe, J., Jackson, N., Mack, K-H, Xanthopoulos, E., 2001, "A search for distant radio-loud quasars in the CLASS survey: Three new radio-selected quasars at z>4", M.N.R.A.S, 325, 1167.
- 15.Xanthopoulos, E., Richards, A. M. S., 2001, "MERLIN imaging of the maser flare in Markarian 348", M.N.R.A.S., 326, L37.
- 16.Castro-Tirado, A. J., et al., **Xanthopoulos, E**., 2001, "The extraordinarily bright beamed optical afterglow of GRB 991208 and its host galaxy", A&A, 370, 398.
- 17.Chae, K-H., Biggs, A., Blandford, R. D., Browne, I. W. A., de Bruyn, A. G., Fassnacht, C. D., Helbig, P., Jackson, N. J., King, L. J., Koopmans, L., Mao, S., Marlow, D. R., McKean, J., Myers, S., Norbury, M., Pearson, T. J., Readhead, A. C. S., Rusin, D., Sykes, C. M., Wilkinson, P. N., **Xanthopoulos, E.**, York, T., 2002, "Constraints on Cosmological Parameters from the Analysis of Class Radio-Selected Gravitational Lens Statistics", Phys. Rev. Letters, 89, 151301.
- 18.Fassnacht, C. D., Xanthopoulos, E., Koopmans, L. V. E., Rusin, D. 2002, "A determination of H<sub>0</sub> with the CLASS gravitational lens B1608+656: III. A significant improvement in the precision of the time delay measurements", Ap.J, 581, 823.
- 19.Browne, I. W. A., Wilkinson, P. N., Jackson, N. J. F., Myers, S. T., Fassnacht, C. D., Koopmans, L., Marlow, D. R., Norbury, M., Rusin, D., Sykes, D. R., Biggs, A. D., Blandford, R. D., de Bruyn, A. G., Chae, K.-H., Helbig, P., King, L. J., McKean, J. P., Pearson, T. J., Phillips, P. M., Readhead, A. C. S., **Xanthopoulos, E.**, York, T. 2003, "The Cosmic Lens All-Sky Survey; gravitational lens candidate selection and follow-up", M.N.R.A.S., 341, 13.
- 20.Xanthopoulos, E., Thomasson, P., Muxlow, T. W. B., Garrington, S. T., 2004, "MERLIN Observations of Stephan's Quintet", M.N.R.A.S, 353, 1117.

- 21.Xanthopoulos, E., Thean, A. C. H., Pedlar, A., Richards, A. M. S., 2008, "MERLIN 5 GHz observations of selected Seyfert galaxies", M.N.R.A.S., submitted.
- 22.Xanthopoulos, E., Becker, W. H., White, R. L., 2008, "Improved constraints on the cosmological parameters using the VLA FIRST survey", A.J., submitted.
- 23.Xanthopoulos, E., Thomasson, P., Saikia, D. J., 2008, "GMRT observations of Stephan's Quintet \$-\$ Investigating the low-frequency end", M.N.R.A.S., submitted.
- 24.Xanthopoulos, E., Fassnacht, C. D., Koopmans, L. V. E., Rusin, D., 2008, "Second monitoring campaign of the complex lens system B1933+503", M.N.R.A.S., in preparation.
- 25.Xanthopoulos, E., Richards, A. M. S., 2008, "The water maser signatures in NGC 5506, NGC 2639 and Markarian 1", M.N.R.A.S., in preparation.
- 26.**Xanthopoulos, E.,** Becker, R. H., 2008, "A detailed study of the nucleus and jet morphology of IC 5063 with HST", M.N.R.A.S., in preparation.
- 27.**Xanthopoulos, E.**, Browne, I. W. A., Porcas, R. W., Wilkinson, P. N., Patnaik, A. R., Norbury, M., Karidis, A., Jackson, N. J., Gabuzda, D. C. 2008, "The core-jet structure in the JVAS gravitational lens system B1030+074", M.N.R.A.S., in preparation.
- 28.Xanthopoulos, E., Browne, I. W. A., Patnaik, A. R., Wilkinson, P. N., 2008, "VLA and MERLIN monitoring observations of the gravitational lens system B1030+074", M.N.R.A.S., in preparation.

#### Publications in proceedings of conferences

- 1.Xanthopoulos, E. and De Robertis, M. M. 1991, "Broad-Band Imaging of 8 Non-Interacting Seyfert Galaxies: are they Really Completely Isolated?", Proceedings of the conference "Structure and Emission Properties of Accretion Disks", 6th IAP / IAU Colloquium No. 129, edited by Bertout, C., Collin, S., Lasota, J-P, Tran Thanh Van, J. (Editions Frontieres:France), page 563.
- 2.Xanthopoulos, E. and De Robertis, M. M. 1991, "Short time-scale variability in bright Seyfert galaxies", Proceedings of the conference "Variability of Active Galactic Nuclei", edited by Miller, H. R. and Wiita, P. J. (Cambridge University Press), page 265.
- 3.Xanthopoulos, E. 1992, "VRI CCD surface photometry of Seyfert 1, Seyfert 2 and intermediate Seyfert-type galaxies", BAAS Suppl. Ser., 23, No. 3, 1077.
- 4.Xanthopoulos, E. 1996, "Broadband imaging of isolated and interacting Seyfert galaxies", Proceedings of the A' Panellenic Astronomical Society Meeting, edited by Laskarides, P. et al., page 197.
- 5.Xanthopoulos, E. 1996, "Narrow-band emission-line and continuum CTIO images of Seyfert 1, Seyfert 2 galaxies and LINERS", BAAS 189, Vol. 28, p. 1285.
- 6.Xanthopoulos, E., Mack, K-H., 1998, "Redshifts for an optically bright sample of flat spectrum radio sources for cosmology", Proceedings of the Annual Scientific Meeting of the Astronomische Gesellschaft at Heidelberg, poster # P102.

- 7.Helbig, P., Blandford, R. D., Browne, I. W. B., De Bruyn, A. G., Fassnacht, C. D., Jackson, N., Koopmans, L. V. E., Marlow, D. R., Myers, S. T., Quast, R., Rusin, D., Wilkinson, P. N., **Xanthopoulos, E.**, 1998, "Measuring Cosmological Parameters With the JVAS and CLASS Gravitational Lens Surveys", Proceedings of the 19th Texas Symposium on Relativistic Astrophysics and Cosmology, E.150.
- 8.Xanthopoulos, E., Browne, I. W. B., King, L. J., Koopmans, L. V. E., Jackson, N. J., Marlow, D. R., Patnaik, A. R., Porcas, R. W., Wilkinson, P. N., 1999, "The Gravitational Lens System B1030+074. Discovery and Follow-up" Proceedings of the IAU 194, "Activity in Galaxies and Related Phenomena", page 373.
- 9.Biggs, A., Browne, I. W. B., Helbig, P., Jackson, N., King, L., Marlow, D. R., McGuinness, A., Nair, S., Sykes, C. M., Wilkinson, P. N., **Xanthopoulos, E.**, De Bruyn, A. G., Blandford, R., Cohen, J., Fassnacht, C., Pearson, T., Readhead, A., Womble, D., Bremer, M., Miley, G., Koopmans, L., Myers, S., Patnaik, A., 1999, "Cosmological Parameters from the CERES Project", Proceedings of the 183rd symposium of the International Astronomical Union held in Kyoto, Japan, "Cosmological Parameters and the Evolution of the Universe", edited by Katsuhiko Sato. Publisher: Dordrecht, Boston: Kluwer Academic, page 61.
- 10.Xanthopoulos, E., Browne, I. W. B., Wilkinson, P. N., Jackson, N., Karidis, A., Porcas, R. W., Patnaik, A. R., Koopmans, L. V. E., Marlow, D. R., 1999, "Everything you ever wanted to know about the JVAS gravitational lens system B1030+074 but were afraid to ask" in "Gravitational Lensing: Recent progress and Future Goals", eds: T.Brainerd and C.Kochanek, ASP Conf Series, Vol. 237, page 109.
- 11.Xanthopoulos, E., Dennett-Thorpe, J., Snellen, I., Jackson, N., Mack, K-H, 2000, "The CERES Astronomical Database", Proceedings of the 4th Hellenic Astronomical Society Meeting, eds. Seimenis, J., page 41 (astro-ph/9912208).
- 12.Xanthopoulos, E., et al., 2000, "The core-jet structure of the JVAS lens B1030+074", in Proceedings of the 5th EVN Symposium 2000, eds: J. Conway, A. Polatidis, R. Booth, Y.M. Pihlström, Onsala Space Observatory, Chalmers Technical University, Gothenburg, Sweden (2000), p. 49.
- 13.Xanthopoulos, E., Browne, I. W. A, Wilkinson, P. N., Patnaik, A. R., 2000, "VLA and MERLIN monitoring observations of the gravitational lens system B1030+074", in Proceedings of the "IAU 2000: New Cosmological Data and the Values of the Fundamental Parameters", Eds: Lasenby, A., Wilkinson, A., Astronomical Society of the Pacific (ASP), p. 532 (astro-ph/0012373).
- 14.Browne, I. W. B., Xanthopoulos, E., Biggs, A., Norbury. M., 2001, "VLA 8.4 GHz monitoring observations of the CLASS gravitational lens B1933+503" in "Gravitational Lensing: Recent progress and Future Goals", eds: T.Brainerd and C.Kochanek, ASP Conf Series, Vol. 237, page 79.
- 15.Fassnacht, C. D., Xanthopoulos, E., Koopmans, L. V. E., Pearson, T. J., Readhead, A. C. S., Myers, S. T., 2001, "Measuring H<sub>0</sub> with CLASS B1608+656: The second season of VLA monitoring", in "Gravitational Lensing: Recent progress and Future Goals", eds: T.Brainerd and C.Kochanek, ASP Conf Series Vol. 237, page 121, (astro-ph/9909410).
- 16.Xanthopoulos, E., Richards, A. M. S., Diamond, P. J., 2002, "MERLIN water maser observations of the Seyfert 2 galaxy Mrk 348", in "Proceedings of the "IAU Symposium #206: Cosmic Masers: from protostars to black holes", eds Mineese, V., Reid, M., Astronomical Society of the Pacific, p. 438.

- 17.Fassnacht, C. D., Nuccitelli, D., Koopmans, L. V. E., Rusin, D., Xanthopoulos, E., 2004, "Radio monitoring of lens systems", E-proceedings of the workshop "25 years after the discovery: some current topics on lensed QSOs", Santander (Spain), (http://grupos.unican.es/glendama/e-Proc.htm).
- 18.DeVries, W. H., Becker, R. H., White, R. L., Xanthopoulos, E., 2004, "Demographics of Double Lobed Radio Quasars", BAAS 205, #143.01.
- 19.Fassnacht, C. D., Xanthopoulos, E., Rusin, D., Koopmans, L., 2005, "Time Delays in the Gravitational Lens B1608+656: Results from Second and Third Seasons of VLA Monitoring", in Proceedings of the "IAU 2000: New Cosmological Data and the Values of the Fundamental Parameters, Eds: Lasenby, A., Wilkinson, A., Astronomical Society of the Pacific (ASP), p. 455.
- 20.Xanthopoulos, E., Thomasson, P., Muxlow, T. W. B., Garrington, S. T., 2006, "Jet-induced star formation in Seyfert galaxies unveiled through radio-UV correlations", Poster at the "STScI Workshop on Galactic Flows: The Galaxy/IGM Ecosystem", & Proceedings of the "7<sup>th</sup> Astronomy Conference of the Hellenic Astronomical Society Recent Advances in Astronomy and Astrophysics", AIP Conference Proceedings, Volume 848, pp. 587-591.
- 21.Xanthopoulos, E., Thean, A. C. H., Pedlar, A., Richards, A. M. S., 2006, "Linear Radio Structures in Selected Seyfert and LINER galaxies", Poster at the "STScI Workshop on Galactic Flows: The Galaxy/IGM Ecosystem", & Proceedings of the "7<sup>th</sup> Astronomy Conference of the Hellenic Astronomical Society – Recent Advances in Astronomy and Astrophysics", AIP Conference Proceedings, Volume 848, pp. 592-596 (astro-ph/0603549).
- 22.Xanthopoulos, E., Becker, R. H., deVries, W. H., White, R. L., 2006, "Improved constraints on the cosmological parameters using the VLA FIRST survey", Proceedings of the "7<sup>th</sup> Astronomy Conference of the Hellenic Astronomical Society Recent Advances in Astronomy and Astrophysics", AIP Conference Proceedings, Volume 848, pp. 492-496 (astro-ph/0603548).
- 23.Xanthopoulos, E., Becker, R. H., White, R. L., 2006, "Improved constraints on the cosmological parameters using the VLA FIRST survey", Proceedings of the International Astronomical Union Symposium no. 235 "Galaxy Evolution across the Hubble Time", Prague (Czech Republic), S235, #409 (astro-ph/0603548).

#### **Other publications**

- 1.**Xanthopoulos, E**. 1992, "Broadband imaging of isolated and interacting Seyfert galaxies", PhD. thesis, York University.
- 2.Urry, M. et al. 1993, "The Baltimore Charter", Proceedings of the conference (workshop): "Women at work: A meeting on the status of women in astronomy", edited by C. Megan Urry, Laura Danly, Lisa E. Sherbert and Shirreen Gonzaga, page 9.

### **B. Medical Publications**

#### **Publications in refereed journals**

1.Adams, J. E., Hutchinson, C. E., Bruce, I. N., **Xanthopoulos, E.**, 2007, "MR scoring for erosions in Rheumatoid Arthritis images of the wrist and hand", Rheumatology, in preparation.

- 2.Xanthopoulos, E., Hutchinson, C. E., Adams J. E., Bruce, I. N., Nash, A. F. P., Holmes, A. P., Taylor, C. J., Waterton, J. C., 2007, "Improved Wrist Pannus Volume measurements from contrastenhanced MRI in Rheumatoid Arthritis using Shuffle Transform", Magnetic Resonance Imaging, Volume 25, Issue 1, January 2007, Pages 110-116.
- 3.Naish, J. H., Xanthopoulos, E., Hutchinson, C. E., Waterton, J. C., Taylor, C. J., 2006, "MR measurement of articular cartilage thickness distribution in the hip", Osteoarthritis & Cartilage, Volume 14, Issue 10, October 2006, Pages 967-973.

### Publications in proceedings of conferences (refereed) – Abstracts

- Xanthopoulos, E., Taylor, C. J., Hutchinson, C. E., Adams, J. E., Bruce, I. N., Waterton, J. C., 2002, "MRI-determined volume of enhancing pannus of the hand and wrist as means of studying reproducibility of the method and progression of Rheumatoid Arthritis", International Society of Magnetic Resonance in Medicine (ISMRM) 2002, ISMRM2002 proceedings, #287.
- Xanthopoulos, E., Taylor, C. J., Hutchinson, C. E., Adams, J. E., Bruce, I. N., Waterton, J. C., 2002, "MRI-determined volume of enhancing pannus of the hand and wrist as means of studying reproducibility of the method and progression of Rheumatoid Arthritis", Medical Image Understanding and Analysis (MIUA) 2002, Proceedings of the sixth Annual Conference MIUA 2002, eds. Houston, A. & Zwiggelaar, R., University of Portsmouth, page 137-140.
- 3. **Xanthopoulos, E.**, Taylor, C. J., Hutchinson, C. E., Adams, J. E., Bruce, I. N., Waterton, J. C., 2002, "Pannus volume as a marker of disease activity in Rheumatoid Arthritis", IPEM meeting on "Volumetric analysis of MR images", 2002, page 14.
- 4. Naish, J. H., Xanthopoulos, E., Hutchinson, C. E., Taylor, C. J., Waterton, J. C., 2005, "MR measurement of thickness changes in the articular cartilage of the hip due to weight-bearing", Medical Image Understanding and Analysis (MIUA) 2005, Proceedings of the 9<sup>th</sup> Annual Conference, University of Bristol (UK), page 175.
- Naish, J. H., Xanthopoulos, E., Hutchinson, C. E., Waterton, J. C., Taylor, C. J., 2006, "MR measurement of thickness changes in the articular cartilage of the hip due to weight-bearing", International Society of Magnetic Resonance in Medicine (ISMRM) 2006, ISMRM2006 proceedings, in press.

# NAMES & CONTACT INFORMATION FOR REFERENCE LETTERS

 1.Prof. Browne I.W. (Head of CERES and ANGLES EU Networks) Jodrell Bank Observatory Macclesfield, Cheshire, SK11 9DL United Kingdom Phone: +44 1477 572615 Fax: +44 1477 571618 E-mail: iwb@jb.man.ac.uk

### 2.Dr. Thomasson, P. (MERLIN Senior Scientist)

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#### 3. Prof. Becker, R.H. (Head of Astrophysics UC Davis and LLNL)

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#### 6.Dr. Kazanas, D.

LHEA NASA/GSFC Code 661 Greenbelt, MD 20771 *Phone:* +1 301 2867680 *Fax:* +1 301 2861682 *E-mail:* kazanas@milkyway.gsfc.nasa.gov

#### 7. Prof. Taylor, C. J. (Director of Imaging Science & Biomedical Engineering)

University of Manchester Imaging Science & Biomedical Eng. Stopford Medical School, Oxford Road, M13 9PT United Kingdom *Phone:* +44 161 275 5130 *Fax:* +44 161 275 5145 *E-mail:* chris.taylor@man.ac.uk 8.**Prof. Adams, J.** (Head of the Radiology Dept.) University of Manchester Clinical Radiology Imaging Science & Biomedical Eng. Stopford Medical School, Oxford Road, M13 9PT United Kingdom *Phone:* +44 161 275 5114 *E-mail:* judith.adams@man.ac.uk

9.Dr. Hutchinson, C.E. (Senior Lecturer)

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### ASTRONOMY RESEARCH

- 1.CERES research: During my work for the CERES (Consortium for European Research on Extragalactic Surveys) network I got involved in the research area of gravitational lenses (as well as in the radio frequency domain). Specifically I worked on monitoring studies of gravitational lenses discovered during the course of the JVAS/CLASS radio surveys that our Network was working on, using the VLA and MERLIN facilities, and VLBI studies of gravitational lenses to find extended structure that can be used as further constraints for models of the gravitational lenses. I also worked on HST (WFPC2 and NICMOS) data/images that were used for final confirmation of gravitational lens candidates as well as for extinction/microlensing etc studies of galaxies.
- 2.Non-CERES research: Apart from the CERES work, I also studied and continue to study using MERLIN, the structure of Seyfert galaxies, Stephan's Quintet for a new mechanism for star formation excess in distant clusters, and H<sub>2</sub>O maser emission in Seyfert 2 and LINER galaxies (in order to examine the structure and kinematics of the inner few parsecs of these galaxies).
- 3.CERES database: My main responsibility of the Network research position was to create an archive for all the observations of the 15,000 flat spectrum radio sources observed in the northern sky with the purpose to look for new gravitational lens systems, to create statistically clean samples for cosmological studies and to study AGN. The archive is web based (15,000 html pages were created one for each object) and gave access to information ranging from fluxes and coordinates available from different catalogues on these sources, to downloading all the data (radio VLA maps, raw VLA data, MERLIN data, model fitting data etc), as well as new optical information (redshifts and spectra) from our International time awarded to the CERES network for optical follow up of the radio data. Two other CERES postdocs were involved in creating a search engine and an automatic updating engine for the archive (see Xanthopoulos et al. astro-ph/9912208).
- 4.UC Davis & LLNL research: Responsible for data mining of the large VLA FIRST radio survey (~111,000 sources) that was completed in 2003. To design new projects that take advantage of the

data in the archive, complement the data with new multiwavelength observations using the best ground and space observatories (e.g. Keck, Chandra, etc), publish the results in best refereed journals and present the work in international conferences.

5. Other research: (see research plans for a detailed complete list of current and future projects).

# **OBSERVING EXPERIENCE**

### 1. Optical telescopes:

a.Mont Megantic (Montreal) b.UTSO (Chile) c.CTIO (Chile) d.WHT (La Palma) e.INT (La Palma) f.NOT (La Palma) g.CST (Tenerife) h.Skinakas (Crete) i.Lick (CA)

### 2.Radio telescopes:

1.VLA (USA) 2.VLBA/VLBI/EVN/VSOP (USA, Europe) 3.MERLIN (UK) 4.GMRT (India)

### 3. Sub-millimeter telescopes:

a.IRAM (Granada/Spain) b.SEST (Chile)

# **EXPERIENCE WITH SPACE OBSERVATORIES & SPACE OBSERVATIONS**

### 1. Hubble Space Telescope (HST)

- NICMOS images of JVAS/CLASS gravitational lens systems
- WFPC2 images of the double-image gravitational lens system, B1030+074
- High resolution optical and near-UV imaging of the first radio-loud megamaser galaxy 3C 403

# 2. Chandra X-ray Observatory

- The true causal connection between AGN and Starbursts
- Chandra observations of NGC 7319 and other jet-induced star formation candidates
- Chandra observations of the jets in the lens system B1030+074

### 3. XMM-Newton

• Chandra and XMM-Newton observations of intriguing gravitational lenses

# 4. **VSOP**

• VSOP observations of double lens system B1030+074

### 5. GALEX

• Using GALEX archive data of Stephan's Quintet to study in detail the star-formation history

### **COMBINING ASTRONOMICAL & MEDICAL IMAGING**

- 1. British Machine Vision Association conference on "Medical and astronomical imaging" in London (April 2001)
- 2. PPARC Scottish Industry Workshop at the UK Astronomy Technology Center and Royal Observatory in Edinburgh "astronomy technology in medical imaging" (April 2002)
- 3. Summer School on Adaptive Optics at the Center for Adaptive Optics (CfAO), University of California Santa Cruz (August 2005).

### SKILLS

### **Referee:**

1. Monthly Notices of the Royal Astronomical Society (MNRAS)

2.Internal for Jodrell Bank

3.Observing proposals at the ING (La Palma) telescopes

4. Systemics, Cybernetics and Informatics Conference Papers 2003-present.

#### Languages:

1.Greek (native), English (fluent), French (excellent), Italian & Spanish (basic)

### Computer & software knowledge:

- 1.Expertise in VISTA, IRAF, RETICENT (Pritchet et. al. 1982).
- 2.Working knowledge in **PPP** (a faint-galaxy photometry and image analysis system –Yee Pub.A.S.P 103, page 396, 1991), **MIDAS & FIGARO** and **STSDAS**.
- 3.Good knowledge of AIPS & DIFMAP.
- 4.Good knowledge of MONGO/PONGO (for graphics), DAOPHOT, LATEX, TEX, WORD, MAPLE and SAS.

5.Expertise in VAX/VMS, UNIX, LINUX & PCs.

6.Good knowledge of **BASIC**, **FORTRAN**, and **LOTUS 1-2-3** computer languages and a working knowledge of **C**.

7.Excellent use of HTML, AWK, SED and Dreamweaver.

8. Working knowledge of PageMaker, PowerPoint, and Illustrator.

9. Expertise in Matlab and use of "ezDicom", "e-Film" and "Imagej"

10.Basic knowledge of JAVA, JavaScript, VRML, ASP, XML, Python & VPython, VTK, Perl.

11.Good working knowledge of IDL.

### **EXTRA-CURRICULUM ACTIVITIES**

- 1.Regular collaborator/author of the two popular astronomy magazines in Greece, "Night Sky" and "Astronautics" (1993-1996).
- 2.Official interpreter (Greek-English) for the athletic games between Ireland, Greece and Cyprus, held in Greece (1988).
- 3. Helped in the running of the Science Olympics (competition for the brightest science high-school teams) held at York University, Toronto, Canada (1991).

4.Judge in the Science fair held for junior high school students presenting their original science projects in Toronto (1992).

### **HONORS & AWARDS**

During my high school years I received 17 awards for excellence.
 In 1987 I was awarded a York University Graduate Assistantship.
 In 1991 I received an International Space University scholarship.
 Since 1991 I received the following grants:

a.200\$ CND from graduate development fund, 1991.
b.400\$ CDN from research cost fund, 1992.
c.300\$ CND from graduate student association fund, 1992.
d.1000\$ US from Sigma-Xi (US Scientific Research Society), 1992.
e.400\$ US from the Hubble Space Telescope Institute, MD, 1992.
f.330 Euro from the European Astrophysics Doctoral Network, 1993.
g.500\$ US from the Hubble Space Telescope Institute, MD, 1995.
h.40.000 drachmas from the Greek Astronomical Committee, 1996.
i.100 Euro for the IX Canary Islands Winter School of Astrophysics, 1997.
j.700 CHF travel grant from the International Astronomical Union, 1998.
k.800 Euros accommodation and travel grant for the Euro Winter School "Observing with the Large Telescope Interferometer", 2002.
1.450 pounds from JBO for data reductions visit (August 8-22 2007).

# **CONFERENCE/MEETING ORGANIZATION & THESIS SUPERVISION**

- 1.In 1998-1999 I co-organized the weekly journal club talks at Jodrell Bank and also the 1998 Internal Symposium.
- 2.Member of the local organizing committee of the meeting YERAC99 (Young European Radio Astronomers' Conference) that was held at Jodrell Bank in August of 1999.
- 3.In April 2001, I acted as a "coach" for the graduate training course/school "training the graduate manager" held in Manchester by the U. of Manchester Careers Services.
- 4.Supervised Mr. Aristidis Karidis who completed his MSc at Jodrell Bank (September 1998- December 1999) with a thesis titled: "The radio structure of gravitational lenses: VLBI observations of the double lens B1030+074".

### **COURSES, TRAINING & CERTIFICATES**

### Staff teaching and research training

- 1.One (1) day staff training seminar at the University of Manchester for teaching, research and career planning (1999).
- 2. "Voice management" teaching and training seminar from the 1999-2000 staff development programme of the University of Manchester (2000).

3.University of Manchester staff computer courses (2001-2002): a.Introduction to JAVA b.Introduction to VRML c.Advanced JAVA d.Introduction to Active Server Pages e.1-day workshop on dynamic web pages with JavaScript f.Web accessibility

### List of graduate courses and marks (1986-1989)

Quantum Mechanics: A
 Remote Sensing: B+
 Atomic & Molecular Spectroscopy: A
 Classical Field Theory: B+
 General Astronomy: B
 Classical Mechanics: A
 Galactic Astronomy: B+
 Advanced Optics: A
 General Relativity: B+
 Long Baseline Interferometry: B

### **Extra-curriculum courses**

- 1.*Magazine Journalism* at Manchester City College with qualifications GMOCN Introduction to Magazine Journalism (fall 2002)
- 2.*Calligraphy* City & Guilds two year certificate (2002-2004) & various workshops (UK, USA, Greece) (2002-2007)
- 3. First Aid Training Certificate of attendance from the University of Manchester (2002)

4. Introductory Archery Course - Bowmen of Bruntwood Society (2003)

5.Introduction to Bowling – Livermore, CA (2005)

6.Introduction to Interior Design – N.E.L.E certificate (2008).

# **CLUBS & PROFESSIONAL MEMBERSHIPS**

1.Member of the American Astronomical Society 1990-2000.

2.Member of the Canadian Astronomical Society 1990-2000.

3.Member of the Astronomical Society of the Pacific 1990-1993.

4. Member of the Royal Astronomical Society 1999-2000.

5.Member and secretary of the Astronomy club of York University 1988-1992.

6.Member of the club "Students for the development and exploration of Space" 1991-1992.

7. Member of the European Astronomical Society 1992-1996.

8.Member of the Hellenic (Greek) Astronomical Society since 1993.

- 9.Biography included in the Marquis "Who is who in the world" 1996-list.
- 10.Nominated for membership for the "Friends of the Center for History of Physics (American Institute of Physics)", 1995.
- 11.Nominated for membership for the "Sigma-Xi, Scientific Research Society", 1993.
- 12.Nominated for membership for the "Association for Women in Science", 1994.
- 13.Nominated for membership for the "American Association for the advancement of Science", 1994.

14. Biography included in the 25th Edition of the Dictionary of International Biography, 1997.

- 15.Biography included in the Marquis "The world who is who of women", 14th edition, 1997-list.
- 16.Member of the International Astronomical Union (IAU) since 2000.

17.Member of the British Machine Vision Association (BMVA) 2001-2003.

- 18.Member of the International Society of Magnetic Resonance in Medicine (ISMRM) 2002-2003.
- 19.Member of the Calligraphy & Lettering Arts Society (CLAS) 2003-2005.

20.Member of the Friends of Calligraphy (FOC) 2004.

21.Member of the Women's International Bowling Congress (WIBC) 2005.

# MEDICAL COURSES AND MEDICAL RESEARCH

- 1. Courses: I have completed 3 modules from the "Imaging Science and Biomedical Engineering" MSc program at the University of Manchester and namely 1. Clinical Physics 2. Medical Imaging and 3. Computer Vision. I also attended in 2001 the "Mathematical Methods" course.
- 2. Research (2001-2003): Every 3 months a major meeting between a committee from the Pharmaceutical Company AstraZeneca and from the University of Manchester decided on 3-4 short term medical & imaging projects that covered almost every medical research topic (e.g. neuroscience, musculoskeletal studies, diabetes, epilepsy, pain, etc.). The results from these pilot projects which we published determined which projects would become long term and go on to clinical trials. My major research areas were "Rheumatoid Arthritis" and "Osteoarthritis". Some examples of the projects I worked on are:
  - a) Rheumatoid Arthritis in the hand
  - b) Volumetric MRI in the articular cartilage of the hip
  - c) Measurement of blood volume and endothelial permeability in non-malignant lung disease
  - d) Automatic identification of erosions in Rheumatoid Arthritis hands
  - e) Development and assessment of quantitative oxygen-enhanced MRI in patients with obstructive lung disease
  - f) Automatic volumetric measurements in MRI images.

### **3. Medical collaborations:**

AstraZeneca, Bristol, Manchester, USA and Sweden

# **MEDICAL TRAINING & QUALIFICATIONS**

### Medical Training and mini-meetings:

- "A training course in Magnetic Resonance Imaging and Spectroscopy" at the Royal Marsden NHS Trust / Institute of Cancer Research and The Institute of Physics and Engineering in Medicine, Surrey, UK (October 22-24, 2001)
- 2. Monthly mini-symposia on different topics hosted by the Manchester Medical Society (November 1, 2001 -> Positron Emission Tomography (PET) How, when and why, and what's happening in Manchester; December 6, 2001 -> Debate "Breast screening"; April 11, 2002 -> Picture Archiving of Communication Systems (PACS) The "film less"

radiology department; ) Manchester Medical Society Symposium on "Brain treatments of the future"; January 23, 2002

- **3.** "Facilitating Online Learning" a one day meeting at the University of Manchester; February 25, 2002
- "2002 Brain Repair Centre Spring School" a two-day course on neuroimaging and neurodegeneration hosted by the University of Cambridge Brain Repair Centre; March 25-27, 2002
- 5. IDL Medical Seminar; March 11, 2002
- **6.** Weekend educational program on Magnetic Resonance Imaging at the ISMRM 10th scientific meeting in Honolulu, Hawaii; May 17-18, 2002.
- 7. Live Interactive Webminar on "Advanced Image Processing with Matlab"; June 13, 2002

*Note:* 1, 2 and 3 give points for IPEM (Institute of Physics and Engineering in Medicine) and medical qualifications.

### Medical certificates of attendance, qualifications and credits:

- ✓ Certificate of attendance of the International Society of Magnetic Resonance in Medicine 2002 (27 hours of the educational activity entitled "10th annual meeting of ISMRM" AMA PRA credits)
- ✓ Certificate of attendance of the Medical Image Understanding and Analysis 2002 (9 CPD credits from the Institute of Physics and Engineering in Medicine 11 Category 1 CPD credits from the Royal College of Radiologists)
- ✓ Certificate of attendance of the Training Course in Magnetic Resonance Imaging and Spectroscopy (22-24 October 2001) by the Institute of Cancer Research Royal Marsden NHS Trust (14 CPD credits)
- ✓ Certificate of attendance of the Medical Image Understanding and Analysis 2001
- ✓ Certificate of attendance of the Clinical Radiology Postgraduate lectures at the University of Manchester with titles: Current perspectives in occupational lung disease (2) Recent advances in MRI (3) Paget's disease of bone (Total of 3 CME credits - 1 CME credit each awarded by the Royal College of Radiologists (RCR) Category I)
- ✓ Certificate of attendance Imaging (Manchester Medical Society) Positron Emission Tomography (PET) - How, when and why, and what's happening in Manchester -
- ✓ CME attendance Certificate Imaging (Manchester Medical Society) Picture Archiving of Communication Systems (PACS) - The "filmless" radiology department - (2 RCR Cat I/CME credits)
- ✓ CME attendance Certificate Society, "Brain treatments of the future" (2 CME credits)
- ✓ CPD attendance Certificate Society, (Manchester Medical Society) Manchester Medical Collections (1 CPD/2 CME credits)
- ✓ CME attendance Certificate 10th Annual Meeting of the European Society of Musculoskeletal Radiology (ESSR 2003) (educational courses, bone densitometry workshop & hands-on ultrasound of the wrist course).

### **CONFERENCES & WORKSHOPS ATTENDED**

#### Astronomy conferences:

- 1."Pair and Interacting Galaxies" held in Atlanta, Georgia (November 1989) University of Atlanta (*poster presentation*).
- 2."Variability in Active Galactic Nuclei" held in Tuscaloosa, Alabama (March 1990) University of Alabama.
- 3. "Structure and Emission Properties of Accretion Disks" held in Paris, France (July 1990) Institute of Astrophysics in Paris (*poster presentation*).
- 4. "Modern Instrumentation and Techniques in Astronomy" (workshop) held in Hamilton, Ontario (October 1990) McMaster University.
- 5. "Space Conference 1991" held in Toronto, Canada (October 1991) Ontario Science Center.
- 6."Canadian Astronomical Society Meeting" held in Toronto, Canada (June 1991) York University.
- 7."Space Conference 1992" held in Toronto, Canada (March 1992) Ontario Science Center.
- 8. "American Astronomical Society Meeting" held in Columbus, Ohio (June 1992) Ohio State University.
- 9. "Women at work" (workshop) held in Baltimore, Maryland (September 1992) Space Telescope Science Institute (STScI).
- 10. "1st Panellenic Astronomical Society Meeting" held in Athens, Greece (September 1992) National Observatory in Athens (*talk*).
- 11. "6th Summer School of the European Astrophysics Doctoral Network" held in Thessaloniki, Greece (July 1993) University of Thessaloniki.
- 12."2nd Summer School in Mathematical Cosmology" held in Karlovasi, Samos, Greece (August-September 1994) University of the Aegean Sea.
- 13. "2nd Panellenic Astronomical Society Meeting" held in Thessaloniki, Greece (June -July 1995) University of Thessaloniki.
- 14. "The Physics of LINERs in View of Recent Observations" (workshop) held in Baltimore, Maryland (September 1995) Space Telescope Science Institute (STScI).
- 15. "Wide-Field Spectroscopy" held in Athens, Greece (May 1996) National Observatory of Athens and SISSA (Italy).
- 16. "Observational Cosmology with the New Radio Surveys" (workshop) held in Tenerife, Canary Islands, Spain (January 1997) -EU-IAC-NFRA.
- 17. "National Astronomy Meeting 1997" held in Southampton, United Kingdom (March 1997).
- 18."Golden lenses The Hubble constant and galaxies at high redshift" (mini workshop) held at Jodrell Bank, United Kingdom (June 1997) University of Manchester (*poster presentation*).
- 19. "JENAM97 New trends in Astronomy and Astrophysics" held in Thessaloniki, Greece (July 1 997)
   University of Thessaloniki.
- 20. "The IX Canary Islands Winter School of Astrophysics Astrophysics with large databases in the Internet Age" held in Tenerife, Canary Islands (November 1997) (*poster presentation*).
- 21."National Astronomy Meeting 1998" held in St. Andrews, United Kingdom (March-April 1998) (*poster presentation*).
- 22."Sixth Synthesis Imaging Summer School" held in Socorro, New Mexico, USA (June 1998).
- 23."BL Lac-phenomenon meeting" held in Turku, Finland (June 1998).
- 24."IAU symposium 194 Activity in Galaxies and related phenomena" held in Byurakan, Armenia (August 1998) (*talk*).
- 25."Astronomy 2000+ Greek prospects for the 21st century" held in Athens, Greece (November 1998).
- 26."Gravitational Lensing: Recent Progress and Future Goals" held in Boston, USA (July 1999) (*poster presentation*).
- 27. "National Astronomy Meeting 1999" held in Guernsey, Channel Islands (July 1999).

- 28."4th Hellenic Astronomical Meeting" held in Samos, Greece (September 1999) (*poster presentations*).
- 29. "Liverpool Telescope Science Workshop" held in Liverpool John Moores, UK (March 2000).
- 30. "Radio Synthesis Imaging Spring School" held at Jodrell Bank, UK (April 2000).
- 31."EVN Symposium 2000" held at Onsala Space Observatory, Sweden (*talk*).
- 32."IAU 2000" held at the University of Manchester, United Kingdom (August 2000) (*poster presentation*).
- 33. "Euro Winter School: Observing with the Very Large Telescope Interferometer" held in Les Houches, France (February 2002) (*poster presentation*).
- 34. "PPARC Scottish Industry Workshop at the UK Astronomy Technology Center" held in Edinburgh, UK (April 2002).
- 35."6th Hellenic Astronomical Society Meeting" held in Athens, Greece (September 2003) National Observatory of Athens.
- 36."STScI Workshop on Galactic Flows: The Galaxy/IGM Ecosystem" held in Baltimore, MD, USA (March 2005) Space Telescope Science Institute (*2 poster presentations*).
- 37."7<sup>th</sup> Astronomy Conference of the Hellenic Astronomical Society Recent Advances in Astronomy and Astrophysics" held in Kefallinia Island, Greece (September 2005) (*4 poster presentations*).
- 38."1<sup>st</sup> Hellenic-European Student Space Science and Technology Symposium" held in Patras, Greece (October 2006).
- 39."Space & Security 2007" Meeting held in Thessaloniki, Greece (February 2007).
- 40."FP7 Program People" Meeting held in Thessaloniki, Greece (March 2007).
- 41."5<sup>th</sup> Panellenic Conference of Amateur Astronomy" held in Patras, Greece (October 2007).

### Other astronomy meetings:

- During the course of the CERES European Network which was a Human Capital and Mobility Program, we had the chance to organize and attend a series of internal workshops and small meetings and gatherings for science that included part or all of the members of the CERES team and the six universities of the Network (1. Jodrell Bank (UK) 2. Cambridge University IoA (UK) 3. Groningen (Holland) 4. Dwingeloo (Holland) 5. CNR Bologna (Italy) 6. U. of Lisbon (Portugal). Meetings were held: 1. Tenerife (twice) 2. Bologna (twice) 3. Dwingeloo 4. Jodrell 5. Lisbon and 6. Crete
- 2.I also attended 1-2 per year Royal Astronomical Society Meetings which are held monthly in London. The ones that I attended were in the general area of AGN, Starbursts and Gravitational Lensing.
- 3.I took part in the Learning through Technology Network meetings that deals with implementing the use of learning through technology environment (e.g. WebCT) to facilitate learning and teaching courses at the University level.

### **Medical conferences:**

- 1."Astronomical & Medical Imaging" (BMVA meeting) held in London, UK (April 2001).
- 2."Probabilistic Models in Vision and Signal Processing" (BMVA meeting) held in London, UK (May 2001).
- 3. "Medical Image Understanding and Analysis 2001" (BMVA meeting) held in Birmingham, UK (July 2001).
- 4. "7th Annual Meeting of the British Chapter of ISMRM (International Society of Magnetic Resonance in Medicine)" held in Cambridge, UK (September 2001).
- 5."12th Annual NMR Symposium Imaging and Spectroscopy" held in London, UK (February 2002).
- 6. "Neurodegeneration and Neuroimaging Spring School" held in Cambridge, UK (March 2002).

- 7."Tenth Scientific Meeting & Exhibition of the International Society for Magnetic Resonance in Medicine" held in Honolulu, Hawaii (May 2002) (*talk*).
- 8. "Medical Image Understanding and Analysis 2002" (BMVA meeting) held in Portsmouth, UK (July 2002) (*poster presentation*).
- 9."Quantitative Image Analysis Volumetric Analysis of MR Images" (IPEM Institute of Physics and Engineering in Medicine - meeting) held in the Royal Marsden Conference Centre, London (November 2002) (*talk*).
- 10. "North-West Regional Radiologist Meeting" (University of Manchester Radiologist Training Scheme) held at the Manchester Royal Infirmary, Manchester, UK (March 2003) (*invited talk*).
- 11."10th Annual Meeting of the European Society of Musculoskeletal Radiology" held in Aarhus, Denmark (June 2003) (*talk*).
- 12."The International Skeletal Society 2003 Meeting" held at San Francisco, USA (September 2003) (*talk, given by a collaborator*).

### **Other conferences:**

1. "3<sup>rd</sup> International Conference on Typography and Visual Communication" held in Thessaloniki, Greece (June 2007).