

## APOSTOLOS MASTICHIADIS

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### **Education**

- Degree in Physics, Physics Dpt, University of Athens, 1979
- MSc, Sussex University, England, 1980
- PhD, Boston University, USA, 1985

### **Thesis**

‘Electron-Positron Production By Ultrarelativistic Electrons In A Soft Photon Field’,  
advisors K. Brecher and A. Marscher, Boston University

### **Positions**

- Postdoctoral Fellow, Theory group, Max-Planck-Institut fuer Extraterrestrische Physik, Garching, Germany, 1985-86 and 1987-88
- Research Associate, Cosmic Ray group, Department of Physics and Mathematical Physics, University of Adelaide, Australia, 1988-90
- Research Associate, Kosmophysik group, Max-Planck-Institut fuer Kernphysik, Heidelberg, Germany, 1990-92 and 1993-97
- NAS/NRC Research Associate, NASA/Goddard Space Flight Center, Maryland, USA 1992-93
- Associate Professor, Physics Department, University of Athens, 1997-present

### **Research Interests:**

- Particle Acceleration and Radiation. Applications to  
Active Galactic Nuclei  
Gamma Ray Bursts  
Supernova Remnants
- Radiative Processes
- Cosmic Ray Physics

## PUBLICATIONS IN REFEREED JOURNALS

1. A. Mastichiadis, A.P. Marscher, and K. Brecher "Electron-Positron Pair Production by Ultrarelativistic Electrons in a Soft Photon Field", *Astrophysical Journal* 300, 178 (1986).
2. A. Mastichiadis "On the Implications of UHE Activity from X-ray Binary Systems", *Astronomy and Astrophysics* 169, 373 (1986).
3. A. Mastichiadis, K. Brecher, and A.P. Marscher "Electromagnetic Cascades in the Magnetosphere of a Very Young Pulsar: A Model for the Positron Production near the Galactic Center", *Astrophysical Journal* 314, 88 (1987).
4. W. Hermsen, K. Bennett, J.B.G.M. Bloemen, R. Buccheri, F.A. Jansen, A.Mastichiadis, H.A. Mayer-Hasselwander, M.E. Ozel, A.M.T. Pollock, A.W. Strong "High-Energy Gamma-Ray and Hard X-Ray Observations of Cyg X-3", *Astronomy and Astrophysics* 175, 141 (1987).
5. A. Mastichiadis, H. Ogelman, and J.G. Kirk "Spectral characteristics of the emerging X-rays from a possible pulsar in Supernova 1987A", *Astronomy and Astrophysics* 201, L19 (1988).
6. A. Mastichiadis, N. Kylafis, and J. Ventura "Supernova 1987A: envelope metallicity and the nature of the soft X-ray component", *Astronomy and Astrophysics* 208, L11 (1988).
7. J.G. Kirk and A. Mastichiadis "Neutrons from Active Galactic Nuclei", *Astronomy and Astrophysics* 213, 75 (1989).
8. A. Mastichiadis and R.J. Protheroe "VHE Gamma-Ray Emission from Active Galactic Nuclei" *Monthly Notices of the Royal Astronomical Society* 246, 279 (1990).
9. A.K. Harding, A. Mastichiadis, R.J. Protheroe and A. Szabo "Mixing of Cosmic Rays and Matter in the Envelope of SN1987A: Implications of Gamma-Ray Emission", *Astrophysical Journal* 378, 163 (1991).
10. A. Mastichiadis, R.J. Protheroe and S.A. Stephens "Cosmic Ray Positron Production by Gamma-Ray Interactions on Starlight", *Proceedings of the Astronomical Society of Australia* 9 (1), 115 (1991).
11. A. Mastichiadis "Relativistic Electrons in Photon Fields: Effects of Triplet Pair Production on Inverse Compton Gamma-Ray Spectra", *Monthly Notices of the Royal Astronomical Society* 253, 235 (1991).
12. A. Mastichiadis and N.G. Kylafis "Compton Scattering in a Converging Fluid Flow: Spherical Near-Critical Accretion onto Neutron Stars", *Astrophysical Journal* 386, 136 (1992).

13. C. D. Dermer, R. Schlickeiser and A. Mastichiadis "High-energy gamma radiation from extragalactic radio sources", *Astronomy and Astrophysics* 256, L27 (1992).
14. M. Livio, A. Mastichiadis, H. Ogelman and J.P. Truran "On the Role of Radioactive Decays in Powering X-rays from Novae", *Astrophysical Journal* 394, 217 (1992).
15. J.G. Kirk and A. Mastichiadis "X-ray flares from runaway pair production in active galactic nuclei" *Nature* **360**, 135 (1992).
16. R.J. Protheroe, A. Mastichiadis and C.D. Dermer "Pair-Compton cascading in a spatially varying anisotropic radiation fields", *Astroparticle Physics* 1, 113 (1992).
17. A. Mastichiadis, R.J. Protheroe and A. P. Szabo "The Effect of Triplet Production on Saturated Pair-Compton Cascades in Thermal Radiation", *Monthly Notices of the Royal Astronomical Society* 266, 910 (1994).
18. A. Mastichiadis and L. Ozerney "X-Rays and Gamma-Rays from SgrA\* as a Wind Accreting Black Hole", *Astrophysical Journal* 426, 599 (1994).
19. P.A. Johnson, A. Mastichiadis, R.J. Protheroe, T.S. Stanev and A.P. Szabo "High Energy Gamma Rays from Cores of Active Galactic Nuclei", *Journal of Physics G: Nuclear Particle Physics* 20, 979 (1994).
20. L. Titarchuk and A. Mastichiadis "Hard X-rays from NGC 4151: A Thermal Origin?"; *Astrophysical Journal* 433, L33 (1994).
21. A. Mastichiadis and J.G. Kirk "Time Dependent Particle Acceleration in Active Galactic Nuclei", *Astronomy and Astrophysics* 295, 613 (1995).
22. A. Mastichiadis "The Hadronic Model of Active Galactic Nuclei", *Space Science Reviews* 75, 317 (1996).
23. A. Mastichiadis "On the high energy non-thermal emission from shell-type supernova remnants", *Astronomy and Astrophysics* 305, L53 (1996).
24. W. Bednarek, J.G. Kirk and A. Mastichiadis "On the production of very high energy beamed gamma-rays in blazars", *Astronomy and Astrophysics* 307, L17 (1996).
25. A. Mastichiadis and O.C. de Jager "TeV emission from SN 1006" *Astronomy and Astrophysics* 311, L5 (1996).
26. W. Bednarek, J.G. Kirk and A. Mastichiadis "Production of gamma-rays by inverse Compton scattering in jets", *Astronomy and Astrophysics Supplement Series* 120, 571 (1996).

27. L. Titarchuk, A. Mastichiadis and N. Kylafis "Spherical Accretion onto neutron stars and black holes", *Astronomy and Astrophysics Supplement Series* 120, 171 (1996).
28. A. Mastichiadis and J.G. Kirk "Variability in the synchrotron self-Compton model of blazar emission" *Astronomy and Astrophysics* 320, 19 (1997).
29. O.C. de Jager and A. Mastichiadis "A relativistic bremsstrahlung/inverse Compton origin for 2EG J1857+0118 associated with SNR W44", *Astrophysical Journal* 482, 874 (1997).
30. L. Titarchuk, A. Mastichiadis and N. Kylafis "Spherical Accretion X-Ray Spectral Formation in a Converging Fluid Flow: Spherical Accretion into Black Holes", *Astrophysical Journal* 487, 834 (1997).
31. J.G. Kirk, F.M. Rieger and A. Mastichiadis "Particle acceleration and synchrotron emission in blazar jets" *Astronomy & Astrophysics* 333, 452 (1998).
32. D. Kazanas and A. Mastichiadis "The origin of TeV electrons in blazars" *Astroparticle Physics* 11, 41 (1999).
33. J.G. Kirk and A. Mastichiadis "Variability patterns of synchrotron and inverse Compton emission in blazars", *Astroparticle Physics* 11, 45 (1999).
34. A.K. Konopelko, J.G. Kirk, F.W. Stecker and A. Mastichiadis "Evidence for Intergalactic Absorption in the TeV Gamma-Ray Spectrum of Markarian 501", *Astrophysical Journal* 518, L13 (1999).
35. D. Kazanas and A. Mastichiadis "Relativistic Electrons in Blazars: A Hadronic Origin?" *Astrophysical Journal* 518, L17 (1999).
36. L.O'C. Drury, P. Duffy, D. Eichler and A. Mastichiadis "On 'box' models of shock acceleration and electron synchrotron spectra", *Astronomy and Astrophysics* 347, 370 (1999).
37. M. Georganopoulos, J.G. Kirk and A. Mastichiadis "The beaming pattern and spectrum radiation from inverse Compton scattering in blazars" *Astrophysical Journal* 561, 111 (2001)
38. A. Akylas, I. Georganopoulos., R.G. Griffiths, I.E. Papadakis, A. Mastichiadis, R.S. Warwick, K. Nandra, and D.A. Smith "Monitoring RXTE observations of Markarian 348: the origin of the column density variations", *Monthly Notices of the Royal Astronomical Society*, 332, 23 (2002)
39. A. Mastichiadis and J.G. Kirk "Models of Variability in Blazar Jets", *Publication of the Astronomical Society of Australia*, 19, 138 (2002)
40. D. Kazanas, M. Georganopoulos and A. Mastichiadis "The 'Supercritical Pile' Model for Gamma-Ray Bursts: Getting the  $\nu F_\nu$  peak at 1 MeV", *Astrophysical Journal Letters*, 578, L15 (2002)

41. E. Rokaki, F. Lawrence, F. Economou and A. Mastichiadis “Is there disc in the superluminal quasars?”, *Monthly Notices of the Royal Astronomical Society*, 340, 1298 (2003)