

Fernando Eugenio Barrio–Madias

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Education

- **Doctor of Philosophy, Astrophysics, University of Oxford.**
Quasars within the Epoch of Reionisation. St Edmund Hall – University of Oxford, March 2010.
- **Master of Science, Astrophysics, University of Durham.** (master by research)
X-ray Emission from accreting Black Holes. Ustinov – University of Durham, September 2002.
- **Bachiller Universitario en Física, Universidad Nacional de Tucumán.**
Equivalent to a BA Physics Honours I class (marks unweighted average 7.31/10.00).
Universidad Nacional de Tucumán, Argentina, June 2000.

Skills

Technical & IT

- Platforms: Familiarity with Unix/Linux/Solaris, Mac OS X and MS Windows systems.
- Programming: Accomplished programmer in IDL, experience with SQL, and C.
- Scripting Languages: Proficiency with Unix and IRAF scripts, L^AT_EX, GLE, HTML (including XML, CSS and JavaScript). Also experience with Perl scripts.
- Packages: Extensive use of Wolfram Mathematica, office suite and several other astronomy specific packages for image rendering, data display, calibration, reduction, analysis, model fitting, data selection, plotting, graphics, etc.
- Large data sets: Experience using astronomy datasets, databases and catalogues for database querying, cross-matching, data retrieval, and archiving.

Personal

- Numeracy: Highly trained in numerical analysis, calculus, probability and statistics, geometric algebra, and time series analysis. Experience in producing and interpreting plots, graphs and charts.
- Problem solving: Capable of recognising and validating problems, of applying long term solution processes, and to critically evaluate outcomes and findings.
- Flexibility: Capable of easily adapting to new situations and work environments, successfully prioritising workload without compromising in accuracy; proven by combining world-class research, part-time jobs and family life.

Interpersonal

- Communication: Excellent oral and written skills proven by having published scientific and non-scientific articles¹, written theses, presented findings and update reports in team meetings and international conferences, produced posters for congresses, and taught to primary, secondary, university, and adult students.
- Teamwork: Experience working in small teams and large collaborations both in person and remotely.
- Leadership: Experience in managing undergraduate students research projects and coaching private pupils.

Languages

- English (fluent).
- Spanish (native).
- German (basic).

Relevant Experience

Research

- Feb03–Mar10 Research student in astrophysics (DPhil candidate), University of Oxford.
- Produced and coordinated the RAJARBA Survey from the initial planning through to execution, analysis and publication.
 - Collated and administered large dataset of different data types and data sources.
 - Developed analytical tools to quantify and analyse astrophysical datasets (e.g. astrometry cross-correlation, photometric-colour selection and spectral-index measurement, etc.).
 - Coded processes to automatically standardise complex astronomy data from different sources.
 - Developed and managed complex IDL based empirical and mathematical models for spectral energy distribution fitting, including statistical methods for model selection, parameter constrain and confidence estimation.
 - Implemented model refinements based on published papers and others' results.
- Oct01–Dec02 Research student in astrophysics (MSc candidate), University of Durham.
- Managed semi-analytic models exploring the parameter space, setting boundary conditions and fitting to observed data.

Organisation & Administration

- Oct07–Feb08 Departmental Administrator at the Oxford International Centre for Publishing Studies and at Modern Languages. Oxford Brookes University.
- Managed the daily operation of the departmental office, including booking rooms, cataloguing theses, organising small events, etc., and liaising with researchers, lecturers, postgraduate and prospective students.
- Oct05–Jun07 Temporal Administration Officer. Blue Arrow, Oxford.
- Performed several short-term administrative and secretarial covers.
- Jul02–Aug02 Academic Assistant at Open University Summer School of Physics. Green College, Durham.
- Managed the school schedule, bookings, learning materials and a small reference library, and provided a first contact point for students.

Teaching & Outreach

- Oct05–Jun09 External College Tutor: Astrophysics B3. University College, LMH, St Hilda's and Trinity College.
- Oct05–Jun08 Private Tutor: Physics, Mathematics and Science at secondary school level. Oxford.
- Oct05–Jun07 Laboratory Demonstrator: Philip Wetton Telescope. Dept of Physics, University of Oxford.
- Mar97–Jun01 Student Teaching Assistant: Laboratory of Experimental Physics 1, 2, 3 & 4. Dept of Physics, UNT.
- since Sep94 Outreach/ Public Understanding of Science Events Volunteer:
- Involved in class presentations, question sessions, hands-on workshops, electronics laboratory, planetarium demonstrations, open days hosting, etc. Most have been events targeting high school teenagers in their final years aiming to develop interest in science, also hosting public visits to telescopes, laboratories and research departments.
 - Trained as STEM Ambassador in Oxfordshire, Buckinghamshire and Milton Keynes.

Scholarships & Awards

- Jan04 Gosling Bursary 2004, St Edmund Hall, University of Oxford.
- Oct02 DPhil research funded by SISCO EU-RTN (European Commission Research & Training Network).
- Aug00 CIUNT Travel Grant, Science and Technology Secretariat, UNT.
- Dec92 Intercultural Exchange Studentship in New Zealand. AFS. Ruatoki, NZ.

¹Copies available at <http://www-astro.physics.ox.ac.uk/~febm/Webdata/Papers/>