



## Astronomical Research in Edinburgh

There are around fifty active astronomical researchers at ROE, as well as large numbers of programmers, engineers, and technicians. The total number of people on site is about 150. IfA and UK ATC staff share a single canteen, library, computer network, seminar and coffee-talk series, so the effect is of a single large research institute.

The main active areas at present are:

### Cosmology

Large scale structure in the Universe, from optical, IRAS, radio and X-ray selected samples of galaxies and quasars, and from microwave background data; optimised analysis methods for redshift surveys and CMB data; theoretical, numerical and observational studies of large scale structure, the intergalactic medium, and galaxy formation; gravitational lensing and its application in large scale structure studies; processes occurring in the early universe.

### Active Galactic Nuclei (AGN) and related objects

Optical and X-ray AGN variability; multiwavelength spectral energy distributions of AGN; observational studies of obscured AGN and their role in the X-ray and FIR backgrounds; studies of AGN host galaxies and their environment; ultraluminous IRAS galaxies; high-redshift sub-mm sources; theoretical and observational studies of relativistic jets and particle acceleration.

### Nearby Galaxies

Structure, content and evolution of galaxies in the Local Universe (including the Milky Way), with emphasis on their faint components (stellar halos, thick disks and outer disks); galaxy formation as probed by the local fossil record; resolved and unresolved stellar populations; large-scale star formation and the interstellar medium in nearby galaxies;

chemical-abundances and chemical evolution.

### Star Formation

Observational and theoretical studies of the interstellar medium, especially shocks and proto-stellar outflows, and their role in star formation; chemistry of the interstellar medium; star formation in external galaxies; sub-mm studies of Class 0 protostars and starless cores; discs around pre-main sequence stars; disc and planet formation in protostars; theoretical study of star formation in the early universe.

### Stellar astronomy

Surveys for low mass stars and brown dwarfs, and follow-up study of brown dwarf candidates; the stellar luminosity function; parallax and proper motion studies including study of local kinematics from long plate series; white dwarf samples from colour and proper motion; the white dwarf luminosity function and the age of the disc; halo white dwarfs and the dark matter; infrared properties of variable stars as standard candles; symbiotic stars; Wolf-Rayet and other mass-losing stars; star clusters in the Magellanic Clouds.

### Computational Astrophysics

The IfA is host to the Edinburgh Centre for Computational Astrophysics (ECCA) in affiliation with members from the Applied Mathematics group within the School of Mathematics. Areas of interest include cosmological structure formation, star and planet

formation, the merger of neutron stars and black holes as precursors to gamma-ray bursts, and the gravitational dynamics of globular star clusters.

Research-active staff can be grouped as follows:

- Eleven teaching staff at the IfA.
- Five staff elsewhere in the University who undertake astronomy-related research.
- Six STFC, Royal Society, or SUPA research fellows, plus one joint with physics.
- Six STFC rolling grant or EU funded PDRAs.
- Four project funded staff in wide-field astronomy who have a substantial fraction of time available for personal research.
- Ten UK ATC scientists who have some time available for personal research.
- PhD students - typically 25 at any one time.

### Contact

Miss Paula Wilkie  
Institute for Astronomy  
Royal Observatory, Edinburgh  
Blackford Hill  
Edinburgh EH9 3HJ  
U.K.

Tel: +44 (0) 131 668 8403  
Fax: +44 (0) 131 668 8416

[www.roe.ac.uk/ifa](http://www.roe.ac.uk/ifa)  
[paw@roe.ac.uk](mailto:paw@roe.ac.uk)