

## Postdoctoral position in Observational Cosmology and Astrostatistics

The Cosmology and Astronomy group at the African Institute for Mathematical Sciences (<http://www.aims.ac.za>) invites applications for a post-doctoral Fellowship on the topic of *Big Data Solutions in Cosmology*. The successful applicant will work closely with Dr. Y. Fantaye, the ARETE Junior Chair, and other members of the group and will have the choice to join one of the ongoing projects which include:

- Studying geometric properties of the large scale structure in preparation for LSST and SKA
- Developing novel machine learning algorithms to mine images and catalogues for new classes of unexpected objects
- Extended source extraction and anomaly detection for HIRAX and the SKA
- Google Earth Engine Mining: understanding the link between satellite and drone images of African cities and official statistics.

Although preference will be given to candidates with experience in astronomical data mining skills we will consider applicants wanting to switch fields to these areas as we can provide suitable training e.g.

<https://cosmoaims.wordpress.com/2014/10/25/the-jedi-workshops/>.

The cosmology group at AIMS consists of Prof Bruce Bassett (joint with SAAO and UCT), Dr. Yabebal Fantaye (AIMS, Stellenbosch), Dr. Michelle Lochner (joint with SKA) and Prof. Romeel Dave' who holds a SARChI Chair jointly between AIMS, UWC and SAAO. The group is actively involved in a number of international cosmology surveys (Planck, MeerKAT, DES, GAIA, CANDELS, ASKAP-WTF, HIRAX) and forms part of the larger AIMS network which now has centres in Ghana, Senegal, Cameroon, Rwanda and Tanzania as well as South Africa (see e.g.

<http://www.nature.com/news/education-africa-s-counting-house-1.11757>). If they so desire the successful candidate will have the opportunity to broaden their CV significantly in preparation for a permanent position by, for example, teaching across the AIMS network, supervising the small research projects of AIMS students or helping to organise [TEDxAIMS](#).

AIMS is situated about 50m from one of the top beaches in Cape Town, a city that regularly attracts top awards for its beauty (see e.g.

<http://www.capetown.gov.za/en/achievementsandawards/Pages/Listofaccolades.aspx>).

AIMS is particularly suited to candidates who wish to make a real difference in Africa and the world or those seeking a balanced lifestyle. Hiking, swimming, surfing and other water sports are all available within a 10 minute walk. The story of AIMS is described in the TED prize acceptance speech by Neil Turok:

[http://www.ted.com/talks/neil\\_turok\\_makes\\_his\\_ted\\_prize\\_wish?language=en](http://www.ted.com/talks/neil_turok_makes_his_ted_prize_wish?language=en)

It is preferable that the successful candidate take up the post as early as possible, e.g. March 2017, though a later start date is possible. The appointments will be for two years with the possibility of renewing for the third year. The Fellowship offers a competitive salary allowing for a good quality of life. The initial deadline for applications is 31 January 2017 though applications will be considered until the position is filled. Enquiries can be directed to Yabebal Fantaye at [yabi@aims.ac.za](mailto:yabi@aims.ac.za) while applicants should send a CV, brief statement of research interests and email addresses of three potential referees to Ms Joan Africa-Brown at [joan@aims.ac.za](mailto:joan@aims.ac.za).