



**Universidade Eduardo Mondlane  
Faculdade de Ciência  
Departamento de Física  
Coordenação das Actividades de Astronomia**

# Activities in Mozambique: a good motivation for young African students

**Cláudio Moisés Paulo**  
**DARA Annual Network Event**  
**27-29 March 2017**

# The Past: How Astronomy Started in Mozambique

- 2004: Preparation for International Year of Physics
  - Students from Portugal
- Peter M. (2006) & Kevin G. (SAAO 2008)
- 2009: International Year of Astronomy
  - Many activities in Mozambique
- 2010-2016:
  - Introduction of Astronomy and Astrophysics Unit at Universidade Eduardo Mondlane (UEM)
  - Many Astronomical Activities: e.g., **UNawe**, **GTTP** & **JEDI**
    - **Funds from OAD & DARA**



# The Past: Joint Exchange Development Initiative (JEDI)



# The Past: JEDI



# The Present: Human Capital Development (HCD)

- 2 PhD
- 1 Honours

- Funds from SKA, NASSP, INPE & UK



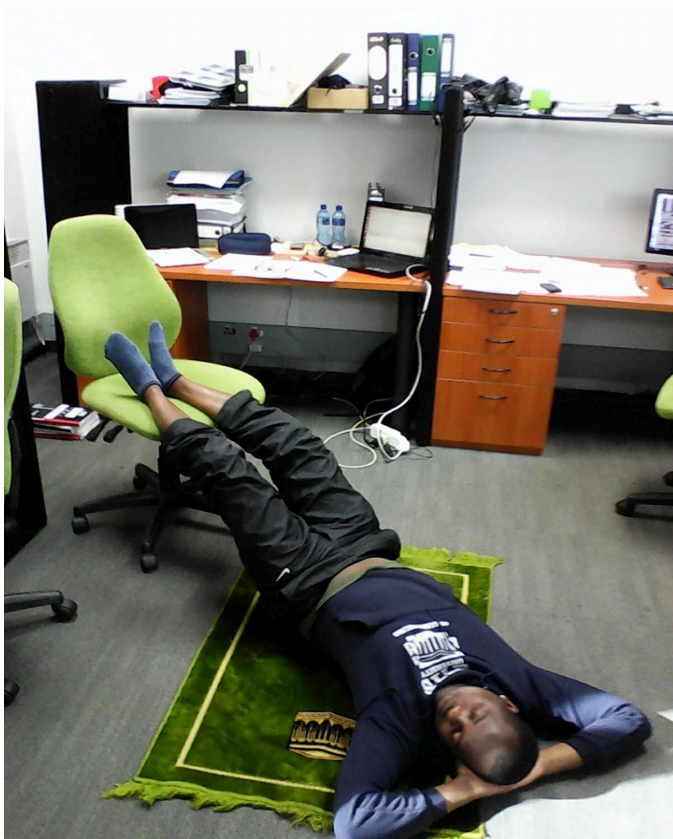
Brazil: Lecturer at UEM



UK: Mozambican working at BIUST

# The Present: HCD

- 3 Students finishing PhD
  - Funds from SKA, INPE & Portugal

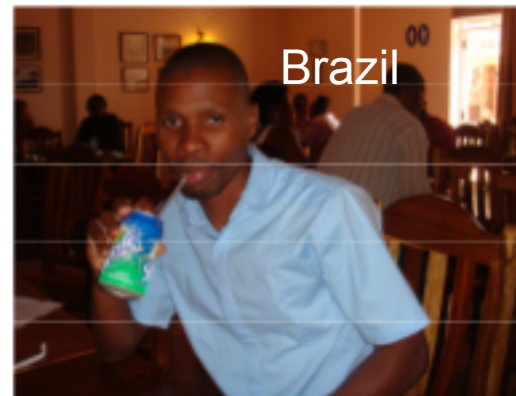


South Africa: Submitted  
Lecturer and Astronomy Coordinator at UEM



Portugal

INAM

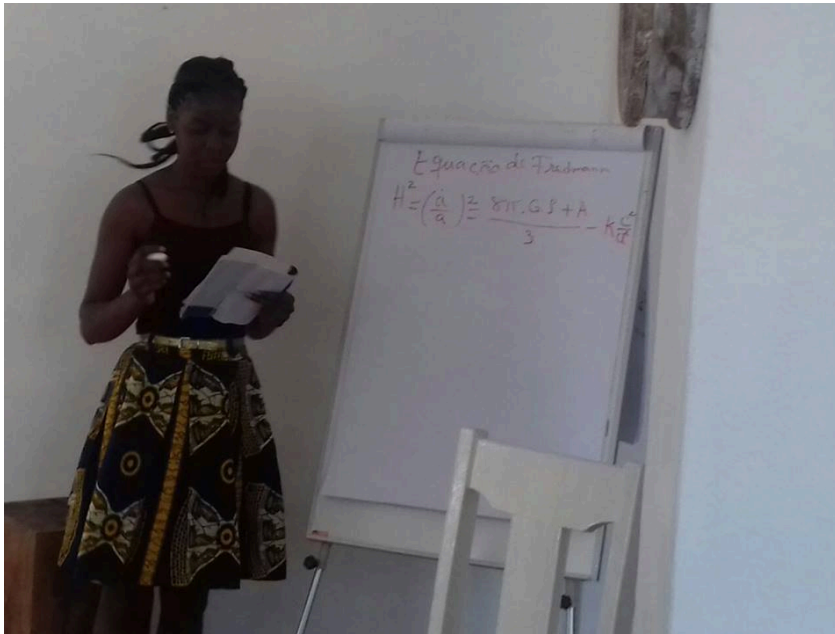


Brazil

Lecturer at UEM

# The Present: HCD

- From JEDI: some students are willing to study Astronomy
- I hope to get support from DARA, SKA & NASSP



# The Present: Astronomy Degree at UEM & the Link with the Government

- Introduction of Astronomy Course underway at UEM
- Syllabus development for UEM, Maputo, 23/09/2016
  - Mario Santos – UWC
  - Jose Fosenca – UWC
  - Paulo Oliveiras – Brazil
  - Claudio Paulo – UEM
  - Genito Maure – UEM
  - Enoque Malate - UEM
  - Amino Naran – UEM
  - Jose Guambe – UEM
- We established recently a working group which involves UEM and the DST like of Mozambique



## The Present: Outreach

- We have a very good outreach activities in schools and TV being organized by Paulo Oliveira from Brazil & many undergraduate students



# The Present: Outreach



# The Present: Public Lecturer



## Near Future

- Introduction of Astronomy course underway at UEM: BSc in Physics with Astronomy (4.5 Years)

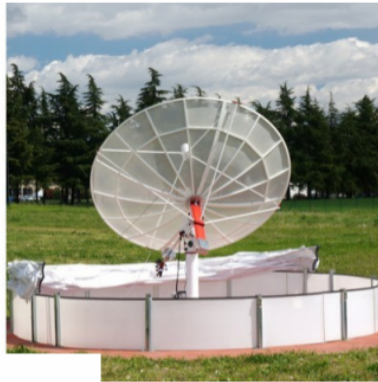
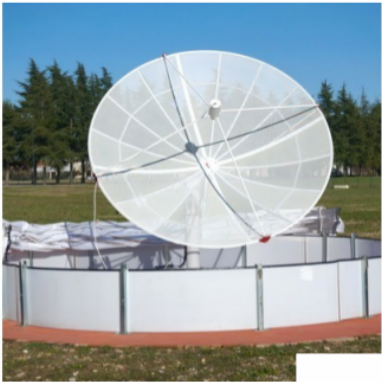
- “The main idea is to give the students a strong expertise in computing and data analysis using Astrophysics as an example. The "Radio Astronomy Techniques" should include practice with the possible radio telescope at the university and will require support from the SKA (the same might be required for "Programming and data analysis in Astronomy II"). So, I'm hoping the SKA is willing to engage directly with the Physics Dept. in order to support this process”. (Mario Santos from UWC)

- Astronomy Fundamentals
- Astrophysics I & II
- Special and General Relativity
- Programming and data analysis in Astronomy I & II
- Radio Astronomy Techniques

- Domingos Barbosa from SKA (Portugal)
- Pedro Russo from Leiden university

# Near Future

- Astrophysics & Space Science Research Group
  - An Intention Letter was submitted to the Department of Physics of UEM
- Two Antenna Interferometry & a Computer Lab
  - Work underway



## Some Publications

1. Cláudio M. Paulo. 2017, in preparation – [Astronomy as a Boost for Science and Technology Development in Mozambique](#).
2. Valério A. R. M. Ribeiro and Cláudio M. Paulo. 2015, Highlights of Astronomy, Volume 16, XXVIII IAU General Assembly, T. Montmerle, ed, [Astronomy in Mozambique](#).
3. Domingos Barbosa, Claudio Paulo, Valerio A. R. M. Ribeiro, Anita Loots, Venkatasubramani L. Thondikulam, Michael Gaylard, Arnold van Ardenne, Sergio Colafrancesco, Miguel Bergano, Jose van Amador, Rodrigo Maia, Rui Melo. 2013, URSI BEJ Session Large Scale Science Projects: Europa Africa Connects, IEEE Africon 2013 Conference Mauritius (9-12 Sep), Accepted for Publication at IEEE Xplorer, Nov 2013, arXiv:1311.4464 – [Design, Environmental and Sustainability Constraints of new African Observatories: The example of the Mozambique Radio Astronomy Observatory](#).
4. Ribeiro, V. A. R. M., Paulo, C. M., Besteiro, A. M. A. R., Geraldés, H., Maphossa, A. M., Nhanonbe, F. A., and Uaissine, A. J. R. 2009, The Role of Astronomy in Society and Culture, IAU Symposium No. 260, 2009, D. Valls-Gabaud & A. Boksenberg, eds., arXiv: 0906.1970v1 – [Introducing Astronomy into Mozambican Society](#).

**Obrigado**  
(Thank You)