Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemarkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

18 November 2025

UCT shines spotlight on SA–Italy partnership powering MeerKAT and SKA

Dr Grazia Umana. Photo: Nasief Manie.

The University of Cape Town (UCT) has marked the completion of the RADIOMAP programme, a three-year exchange initiative that strengthened South Africa and Italy's joint work in radio astronomy. The milestone was celebrated on 12 November at UCT with a public lecture by Dr Grazia Umana from Italy's National Institute for Astrophysics (INAF), who highlighted the growing partnership between the two countries through the MeerKAT and Square Kilometre Array (SKA) projects.

Dr Lucia Marchetti, senior lecturer in UCT's Department of Astronomy and co-leader of the programme, opened the event by reflecting on the value of the partnership.

"We are celebrating the end of a successful three-year exchange programme between South Africa and Italy around MeerKAT and the SKA," she said.
UCT's Dean of the Faculty of Science, Professor Hussein Suleman, spoke about the broader impact of international scientific partnerships.

"The world is not the place it used to be. The distance between countries is no longer what it used to be," he said. "These collaborations bring us closer together for science, and in South Africa, we understand that by doing science, we create a different way of thinking in society."

He noted that the presence of global collaborators at UCT reflects the interconnected nature of modern research.

Focus on developing young researchers
Dr Umana, the principal Italian investigator for RADIOMAP, highlighted the programme's investment in early-career scientists.

"The training, for us is very important," she said. "This international collaboration strengthens our partnership with other SKA members."

Her lecture explored the scientific and engineering contributions behind MeerKAT's achievements. While the telescope's images are widely recognised, she noted that its success is rooted in collaborative work between institutions across continents.

In 2020, Italy joined the MeerKAT Extension project, known as MeerKAT Plus, contributing financial support and engineering expertise.

"Italy contributed financially, but also with in-kind support from our engineers," Umana explained. "This gives INAF the opportunity to work on the scientific programme and to have a chair on the MeerKAT Science Committee."

MeerKAT Plus will add 14 new SKA-compliant antennas to the existing 64, which will increase the telescope's collecting area, boost resolution and enable observations of fainter and more distant radio sources.

"If you add more antennas, you increase the capability of the instrument because you extend the collecting area, and you also improve the resolution," she said. "Engineering work is proceeding well, and technical completion is expected in 2026."

Strengthening global scientific cooperation
RADIOMAP, jointly funded by Italy's Ministry of Foreign Affairs and South Africa's National Research Foundation (NRF), has shown how scientific collaboration and diplomatic engagement can build long-term research capacity.

"The ministry and the NRF fund RADIOMAP. This is a very important programme to push our collaboration further," Umana said. "The relationships built through RADIOMAP led directly to the MeerKAT Plus concept gaining traction in Europe and being recognised as a research infrastructure."

Umana also outlined the coming Band 5 upgrade for MeerKAT, which will extend the telescope's frequency range up to 15 GHz. Part of the European STILES programme, this work will make MeerKAT the most sensitive high-frequency centimetre telescope in the southern hemisphere.

"After the Band 5 upgrade, MeerKAT will be the most sensitive high-frequency centimetre facility in the southern sky," she said.

All receivers and digitisers have been procured, with the first scientific commissioning expected in 2027.

Driven by skilled teams

Umana credited the engineers and scientists from the South African Radio Astronomy Observatory (SARAO) and INAF for the progress made through RADIOMAP and its related projects.

"I want to thank the wonderful team between SARAO and INAF. We are at this point because of their dedication," she said.

The upgraded MeerKAT system will allow researchers to separate individual stars in dense regions, trace galaxy evolution and study the life cycles of stars. The planned surveys will build a rich dataset for future generations.

As Umana closed her lecture, she reflected on the scientific legacy that this work will leave for both countries.

"This is a unique legacy survey," she said. "It will produce information at a frequency that SKA itself will not cover."

Story by Lyndon Julius, UCT News.

Issued by: UCT Communication and Marketing Department

Velisile Bukula
Head: Media Liaison
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: 021 650 2149
Cell: 071 642 3495
Email: velisile.bukulai@uct.ac.za
Website: www.uct.ac.za