



**Monthly Newsletter of International URSI Commission J – Radio Astronomy**  
May 2018

**Officers**

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**News Items**

Greetings Commission J Members!

*The 2018 URSI Atlantic Radio Science Conference (2018 AT-RASC) is upon us!*

The complete program is available <http://www.atrasc.com/content/booklet.pdf> A brief summary of the Commission J program is given below.

Commission J has one finalist in the AT-RASC Student Paper Competition. Many excellent papers were submitted and the competition is stiff. If you're attending the AT-RASC, please attend the student presentations to show support for all of these fine new researchers. A portion of your registration fee helps in providing travel support for students and Young Scientists attending the Conference.

A couple of our members are unable to attend the Conference due to illness - our thoughts are with you for a speedy and complete recovery.

The Activities Spotlight this month shines on the South African Radio Astronomy Observatory (SARAO) Human Capital Development Program, created in 2005 to develop a workforce of highly skilled engineers, scientists, technicians, and artisans to build, operate, and use the South African telescope facilities. Our Early Career Representative Jacki Gilmore kindly made the arrangements for this article, which includes a synopsis of the program and testimonials from three former students. I thank Jacki and Vivienne Rowland for the nice overview of this successful program.

It is my pleasure to bring this newsletter to you each month. I welcome your ideas, articles, news, photos, etc. - I need your help in keeping it interesting and informative.

*Submitted by R. Bradley*

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**2018 URSI Atlantic Radio Science Conference (2018 AT-RASC)**

Monday 28 May – Friday 1 June 2018, ExpoMeloneras Convention Centre, Gran Canaria

Register at <https://mailchi.mp/intec/at-rasc-2018-registration-is-now-open?e=6dc54cab9b>

Complete program is available at <http://www.atrasc.com/content/booklet.pdf>

Please consult the on-line program for room information

**AT-RASC - Commission J Program****Monday**

AM	J1-1 (5)	J6 (4)
PM1	J1-2 (6)	J8-1 (5)
PM2	J1-3 (4)	J8-2 (2)

**Tuesday**

AM	J5-1 (6)	S-JB-1 (5)
PM1	J5-2 (4)	S-JB-2 (4)
PM2	----- Poster Session -----	

**Wednesday**

AM	J2-1 (5)	J3 (6)
PM1	J2-2 (5)	J4 (6)
PM2	J2-3 (4)	S-J (5)

**Thursday**

AM	J9-1 (6)
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NOTE: Number in parentheses indicates the number of papers within a given session

**AT-RASC Regular Sessions:**

J1 Software Enabled Radio Astronomy (15)

J2 Large N Aperture Arrays (13)

J3 Pattern Recognition Applications in Radio Astronomy (6)

J4 Novel Instrument Concepts and Observational Challenges (6)

J5 Detecting Hydrogen Near and Far (10)

J6 Instruments for Education (4)

J7 Mm wave / sub-mm Wave Science and Technology (cancelled)

J8 Radio Telescopes (7)

J9 Radio Astronomy (6)

*AT-RASC Special Sessions:*

S-JACEFG – Applications for pattern recognition methodologies (now part of J3)

S-JB Polarimetry of Advanced Antenna Systems in Radio Astronomy (8)

S-J - Photonics in Radio Astronomy (5)

S-EACFJ - Spectrum Management and Utilization [see full program]

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**2019 URSI Pacific Radio Science Conference (2019 AP-RASC)**

*9 -15 March 2019, New Delhi, India*

Plans are underway for the 2019 AP-RASC in New Delhi, India. Please see

<http://aprasc2019.com/> for details. A possible RFI mitigation workshop associated with this meeting is being discussed.

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**2020 URSI General Assembly and Scientific Symposium (2020 URSI GASS)**

*Rome, Italy*

The site for the next URSI General Assembly and Scientific Symposium has been chosen! Stay tuned for details. If you like to organize a session or workshop at the 2020 URSI GASS please let me know.

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**Activities Spotlight - SARAO**

**Human Capital Development Programme - Creating excellence in radio astronomy**

The South African Radio Astronomy Observatory (SARAO) Human Capital Development Programme (HCD) was started in 2005 to ensure that a sustainable and demographically representative workforce of highly skilled engineers, scientists, technicians and artisans would be available to build, operate, and use the SKA and MeerKAT radio telescope facilities, as well as other local radio astronomy experiments.

To date, the programme has provided funding to 1,054 postdoctoral fellows, postgraduate and undergraduate students studying science and engineering degrees, and to FET students training to be artisans. In addition, the programme is funding five Research Chairs at South African universities, as well as a large number of faculty positions, research fellows, and visiting professors.

From a sample of 246 HCD alumni, 38 are currently employed in university positions in South Africa, and 18 in positions in universities elsewhere in Africa. In addition, 62 alumni are employed by SARAO, as scientists, engineers, technicians and artisans. In total, including alumni employed in industry and at other National Facilities, the HCD programme has added 173 individuals to the South African knowledge economy.

In addition to its contribution to the local economy, the HCD programme has also “contributed” 52 graduates into the international research and university sector. These figures may seem small, however, this is from a small sample of the alumni, as HCD is still in the process of tracking all it’s alumni.

“We must remember that each one of the HCD alumni is more than just a data point, it is a person, who, without the support of SARAO, may not be in the position they are in today. That is 246 success stories, 246 people working in research and development, and in turn many of them training and developing the next generation of scientists and engineers,” says Kim de Boer, Head of the HCD Programme at SARAO. “It is really gratifying to see these young people working in the fields they love, especially because we have known and supported many of them since they were at undergraduate or honours level.”

From the onset, the HCD programme has partnered with local universities and colleges to support academically excellent young people, to obtain the skills and qualifications needed by the radio astronomy sector. In addition, the programme has always provided financial support which is competitive with industry, and which covers the full cost of studying, so that the student’s focus is on their studies and research. Adopting these principles has ensured a higher than average graduation rate at all the academic levels supported by the programme, as well as a high throughput rate of students moving to the next academic level.

### ***Graduation rates***

<u>Level</u>	<u>Graduation rate</u>
Doctorate	79%
Masters	85%
B.Sc Honours	95%
Undergraduate (B.Sc and B.Eng)	85%
Bachelor of Technology	81%
National Diploma	71%

### ***Throughput rates***

B.Sc to B.Sc Honours	83%
National Diploma to B.Tech	80%
B.Sc Honours / B.Eng to Masters	44%
Masters to Doctoral	39%
Doctoral to Postdoctoral	28%

*Tyrone van Balla* from the Digital Backend Team at SARAO, joined the organisation as a Young Professional Development (YPD) recruit in 2015. He studied Electrical Engineering at the

University of Cape Town and specialised in electronics focusing on hardware and software development.

“Being part of the YPD programme at SARAQ provided me with an opportunity to work on an industry leading project while at the same time finding the most suitable direction for my career as engineer. The work was and continues to be challenging, engaging and stimulating and SARAQ fosters a culture of continued learning and provides many opportunities for further development. Working on the MeerKAT radio telescope array has been a rewarding and humbling experience and has provided me with a solid foundation for my future career in engineering,” says Van Balla.

*Benjamin Hugo*, a Junior Software Developer at SARAQ, completed a Masters degree in Computer Science at the University of Cape Town in 2016 working on profiling and accelerating interferometric imaging algorithms. The same year he joined the Radio Astronomy Research Group at SARAQ, where works primarily on imaging software.

“I consider it a great privilege to have had the opportunity to join an organisation where a diverse set of engineering and science skills are required on a day-to-day basis to overcome the very challenging problems that accompany such a massive infrastructure project undertaking.”

“In my opinion this project is surely ranked up there as one of the largest-ever infrastructure development projects undertaken in our country in the last half century. It has and will have a significant contribution to the science and engineering capacity of the country. It is a great honour to participate in this effort. My three years have taught me a host of software development and data processing skills that can be applied in many other contexts,” says Hugo.

He is currently studying towards his PhD focusing on galaxy cluster evolution and profiling and parallelizing pipelines.

*Palesa Nombula*, a current YPD student in the Commercialisation Unit at SARAQ, joined the organisation in January 2018. She is currently studying towards her Masters degree in Astrophysics, focusing on Cosmology and cleaning the HI intensity mapping with machine learning techniques.

“Being part of this programme is a great transition from being a student to being a working professional. I have been challenged enough to learn what my abilities are, I have been able to evaluate my ability and potential in my field of occupation. The environment is safe enough for learning but also competitive enough to push me towards achieving my goals. One has to be well

organised to deal with the pressure of working and studying - it has been a big adjustment but very rewarding,” says Nombula.

For more information visit <http://www.ska.ac.za/students/>

*Submitted by Vivienne Rowland from the SARAO office and Jacki Gilmore*

### **Photo from the Field**



Attendees at the 2017 SARAO Human Capital Development Programme Postgraduate Bursary Conference held in Cape Town

*Photo supplied by of the SARAO/HCD bursary program office*

If you have an interesting photograph that you wouldn't mind sharing with others in the public domain I encourage you to please send a copy to me along with a brief caption and the person's name or organization to whom I should credit.

