SASTA NEWSLETTER

JULY 2019

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SASTA CONGRESS 2019

EARLY-BIRD REGISTRATION HAS BEEN EXTENDED!

Early-bird rates have been extended till 15 July 2019 so register now to take advantage of this offer!

Date: 20-22 August 2019| Venue: ICC, Durban, South Africa.

Go to www.sasta.co.za for registration details.

At this years SASTA we will be taking you on a journey into space with our special keynote speaker, Dr Bernard Fanaroff, a leading international Astronomer. He has overcome adversity in all aspects of his career with innovative thinking, his ability to reinvent himself to suit his goals and his tenacity to not let the sky be his limit. With our industry going through difficult times, this is exactly the kind of inspiration we need to help us look up toward the stars.

Meet our Keynote Speaker: Dr Bernard Fanaroff

Dr Bernard Fanaroff is the Advisor and Former Director of the Square Kilometre Array South Africa (SKA-SA) and MeerKAT radio telescopes. He has been the pioneering force behind these internationally acclaimed projects since their inception in 2003 until 2015. He is also on the Presidential Commission for the Fourth Industrial Revolution, a member of the Advisory Committee of the Breakthrough Listen initiative, co-chairman of the BRICS working group on high-performance computing and IT, a board member of the Cornerstone Institute and a trustee of the Paleontological Scientific Trust.

Career History

After graduating from Wits University with BSc Hons (Theoretical Physics), he enrolled at Cambridge University where he obtained his PhD in radio astronomy. During this period, he co-authored the Fanaroff-Riley classification of radio galaxies and quasars with a fellow astronomer. This scientific breakthrough is still in use today. Thereafter, Dr Fanaroff returned to South African to pursue his passion as an anti-apartheid activist.

He acquired a job at Wits University upon his return but dedicated his after-hours to the struggle against apartheid. He then left the university to take up an opportunity as a full-time union organiser of the Metal and Allied Workers Union. He rapidly progressed to the Head of Office for the Reconstruction and Development Programme and thereafter as the Deputy Director General in the office of former President Nelson Mandela. He also chaired the Integrated Justice System Board and the Inter-departmental committee on border control. Dr Fanaroff dedicated a large part of his career to the struggle against apartheid and eventually left government in 2000.

More about Dr Fanaroff

What have been the challenges in your career and how have you overcome them?

"Ask yourself, What do I have to do to make this work? The first step is to use this to formulate a vision for yourself. Never see your problems as problems, they are challenges", Dr Bernard Fanaroff on challenges.

Having started many jobs knowing little about the subject matter, Dr Fanaroff was always open to learning more about his career choices and surrounded himself with knowledgeable colleagues. He never let his lack of experience deter him from following his aspirations of a free South Africa. From a radio astronomer to the Deputy Director General of the Presidential Office, his perseverance and willingness to solve any challenge, ensured he pursued his goals.

"You can't build a telescope on your own", Dr Bernard Fanaroff on teamwork.

One of the most important ways to overcome the challenges he faced was to always ensure he worked with others as a team. From his struggle past to his success with SKA-SA, Dr Fanaroff always believed in those around him. When it came to tackling the building of the SKA-SA and MeerKAT projects, he picked small groups of young scientists and engineers with a passion to succeed in the industry. By inspiring them with his vision, they were able to stay focused on the project. Dr Fanaroff completely entrusted the group with the project,

giving them full responsibility. The result was an innovative, dynamic group who were able to go beyond their capabilities and build an award-winning design.

How does one confidently be so versatile in their career from an anti-apartheid activist to a leading astronomer?

Its always impossible until you've done it", Nelson Mandela (as quoted by Dr Bernard Fanaroff).

Having dedicated so many years of his career to activism, he never backed down from any of his dreams, no matter how big they were. His zeal for achieving his best in both science and in his fight for social equality led him to winning several awards and honorary positions. He attributes much of his problem-solving skills to his analytical and logical approach gained from his science background. While still an Advisor to the SKA-SA project, he has also taken up a position on the Presidential Commission for the Fourth Industrial Revolution. Here, he hopes to further inspire the country, moreover the youth, to have the confidence to compete with the rest of the world in Science and Technology.

"South Africa has some very bright minds. We can also play a leading role in the world. We just need to decide what we want to do and how to do it.", Dr Bernard Fanaroff on SA youth.

Tell us more on the SKA-SA and MeerKat projects?

"*Astronomers are always wanting to look further back in time. Because light and radio waves in space take a long time to reach us, when we are viewing galaxies and stars, we are actually looking back in time*", Dr Fanaroff on SKA -SA and MeerKAT.

The idea of building the SKA came about in the 90s. The aim of the SKA was to look as far away as possible, to be able to see back in time to the early universe, around the time of the Big Bang. This would also aid in understanding the universe's structure and how galaxies and stars are formed. To do this, scientists would need to build a telescope large enough to collect as much radio waves as possible. Building a single large telescope was virtually impossible. After much research it was realised that this can be achieved by using a number of small dishes spread out over a large area working together as one very large dish (telescope). This was a design that was thought out in the 60s. In 2002, Dr Fanaroff was asked to bid for the project to an international consortium to allow South Africa to host the SKA. It was estimated that the project would cover an area of 3 000 km and would also require involvement from other African countries. In 2006, South Africa and Australia were shortlisted for the project. The Australians as well as several other countries were convinced they would win it. However, in 2012, South Africa won the bid and it was agreed that the majority of the project would be run here and a small part in Australia. At the same time, Dr Fanaroff decided that a parallel project would be run to build a smaller version of the SKA comprising of 64 dishes. This was called the MeerKAT telescope.

"We decided we didn't just want a piece of ground for SKA-SA. We wanted to attract youngsters into Science and Engineering to enable them to grow their skills and expertise", Dr Bernard Fanaroff on why MeerKAT was started.

A team of young aspiring scientists and engineers were assembled for this project. This was a new approach as it is generally only scientists who head up the majority of the telescope design process. The project was a huge success upon its opening. The images gathered from the launch were so good that they were already able to use these in science. This resulted in the telescope being heralded as a leading design in Science and Technology. Dr Fanaroff attributes this success to the tight timelines and hard-working, innovative team that was used in this project. Currently China and Germany are contributing 20 more dishes to the MeerKAT project at their own cost.

SASTA is extremely honoured to host Dr Fanaroff. He is a world -renowned astronomer with the ability to inspire change in both the political and science worlds. He is an extraordinary individual with a wealth of knowledge and experience. His dedication to the betterment of society is evident in his scientific and activist contributions. It is thanks to these contributions that South Africa is shining brightly on the world's map.

Please join us for Dr Fanaroff's keynote address on 20 August 2019, 09h30 at the Durban International Convention Centre.

Kerisha Raghunandan
(SASRI Publications Officer)

A special thanks to Buckman Africa for the sponsorship of the keynote address.

SASTA 2019
Wild 'n Wacky Ideas!

The Cane Plane
Designing a drone that can lift up to six tons of sugarcane from the field zone into a hilo.

A Quacktical Solution
Using geese to 'deweed' sugarcane fields while their droppings can be used as nitrogen fertiliser.

Bag that Ash!
Recycling sugarcane bagasse ash (SCBA) waste to substitute quartz and feldspar in products like porcelain and glass.

Waste to Energy
Bioconverting millroom waste to biomethane gas for electricity, high density pellets for burning and 'home-made' paper.

A Sweet Alternative
Using sweet sorghum as an alternative to sugarcane.

Tailoring your Technologies
Developing a decision tool that assists growers to select a mix of renewable energies to use based on available feedstocks, energy requirements (electricity and fuel), and other factors of a farming operation.

A Nutrient Treasure Trove
Using the nutrient-rich meristems of sugarcane as a food/feed additive for human or animal consumption.

SASTA's Wild 'n Wacky ideas session is on
20 August 2019
Venue: **Durban ICC**
You will be voting for the best wacky idea using the
VoxVote App
Download the app from
Apple App Store or
Google PlayStore

Register now :
www.sasta.co.za

ANNOUNCEMENTS

SASTA CONGRESS 2019

Draft SASTA Programme for the 2019 Congress

We are busy finalising all speakers and times so keep a look out for our email in your inbox soon!

Connect with us on LinkedIn

We've just joined the LinkedIn community. Please check out our new company page and follow us for latest news & updates.

SASTA Website

Don't forget to visit our website for all the **information** you need about the 2019 congress!

The website also has copies of **every SASTA paper** delivered since the inception of congress.

In addition, there are other useful publications related to **factory and agricultural** aspects of the industry.

Visit us at www.sasta.co.za

SASTA Supported API Solutions Golf Day

Please join us at this year's SASTA Supported API Solutions Golf Day!

Venue: Mount Edgecombe Country Club, Course 2

Date: 23 August 2019, Friday

For more info and to sign up for the Golf Day, email: sastagolf@apisolutions.co.za

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We would like to thank all our Sponsors & Exhibitors for their contributions to the 2019 SASTA Congress.

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2019 SASTA EXHIBITION STANDS

We would like to announce that all exhibition stands for the 2019 SASTA Congress are sold out!

SOLD OUT