



Email: [enquiries@nstf.org.za](mailto:enquiries@nstf.org.za) | Tel: +27 12 841 3987 |  
<https://www.nstf.org.za/>



# NSTF e-Newsletter

*S.E.T. for socio-economic growth*

## The roles of science, scientists, government and mathematical modelling in handling the COVID-19 pandemic

*Message from the NSTF Executive Director, Ms Jansie Niehaus*

Our government, under the leadership of President Cyril Ramaphosa has acted commendably, taking the most essential steps to slow down the spread of the novel coronavirus. It is a relief that they are taking research seriously and consulting scientists to inform their pronouncements and actions. [Read the message.](#)



## NSTF News

### 25 years of serving the science, engineering, technology and innovation community in SA

The [National Science and Technology Forum \(NSTF\)](#) is celebrating 25 years of its existence this year. This [stakeholder body](#) represents more than 110 organisations, councils and institutions.

April is the month of celebrating South Africa's democracy, which officially began with the first democratic elections on 27 April 1994 – now celebrated annually as Freedom Day. Our democracy will be 26 years old at the end of the month. As the NSTF marks 25 years, it is good to look back at the beginnings of the NSTF and the reasons for establishing this umbrella body.

The pre-cursor of the NSTF, the National Science and Technology Initiative (NSTI), participated in South Africa's landmark CODESA (Convention for a Democratic South Africa) in 1993. This was part of the events that marked the end of the apartheid era.

As a result of the findings and recommendations of the NSTI, government together with key stakeholders founded the NSTF in 1995 to oversee the establishment of the science and technology system. Forty-one of these founding stakeholders are still NSTF members to this day. The then Minister of Arts, Culture, Science and Technology made his intention

clear by recognising the NSTF as a forum for consultation and addressing science and technology issues within the broad science community.

And this still proudly forms the main mandate of the NSTF today. Every year the NSTF hosts from four to six independent neutral [platforms for vibrant debate](#) and interaction around the roles of science, engineering and technology (SET) in society. Government policies and the latest research on each of the topics are presented to engage with stakeholders. Publicity is generated around each topic to inform the general public, and to communicate the proceedings and recommendations to key stakeholders and government.

The NSTF has forged close relationships with government over the years, particularly the Department of Science and Innovation (previously the Department of Science and Technology), the Ministry, as well as stakeholders at all levels (including [businesses](#), [academic institutions](#), a wide variety of [professional organisations](#), [non-governmental organisations](#), [science councils](#), and [statutory bodies](#)).

NSTF has been organising and hosting the prestigious NSTF [Awards](#) for 22 years. Recognition of the top [science and mathematics matriculants](#) was included from about 18 years ago. In 2008 the [Share 'n Dare programme](#) was founded to profile the NSTF Award winners as role models to the youth and promote SET fields of study and career options. Later, the general public was included as a targeted group for our promotion of SET. Award Winners are profiled as ambassadors for SET and innovation and their stories are shared through the general media.

Organisations that would like to join forces with the NSTF can [apply for membership](#) and thereby enjoy the benefits of making their voices heard and networking with other organisations within the community.



### **NSTF staff working from home**

We are working from home during the lockdown, like all organisations that are able to do so. We were slightly early as we made arrangements a week before lockdown, not knowing that it would become mandatory to stay home a week later. Following the President's declaration of the COVID-19 pandemic as a national disaster on 15 March 2020, the NSTF Management decided that all staff will be working remotely, from 23 March

to 16 April. This decision was informed by the need to safeguard the health and safety of our staff and the people we work with, as well as contributing to slowing down the spread of the virus in South Africa. To make sure that NSTF meets its programmatic commitments, any required meetings are being held virtually.

This issue of NSTF eNews was assembled completely remotely. We wish our readers health, patience and productivity despite the lockdown, and we feel united as we experience this challenging time.

### Membership fees

A reminder that [NSTF membership fees](#) are due from 1 April, the start of the NSTF's financial year. As a non-profit organisation we are completely dependent on our loyal members to sustain our efforts to communicate and promote the relevance and importance of science, engineering, technology (SET) and innovation. The role of research, science communication and the spread of misinformation during the pandemic show that the NSTF's role is crucial in these times.

### This edition of the NSTF eNews

This month we have sourced news from various sources and on various topics as usual. What makes this edition different, is that articles about COVID-19 dominate. See the news item on Prof Helen Rees below. The SET Policy News and SET Community News are dominated by links to COVID-19 related items. Note that almost all events in the science and related sectors have been cancelled or postponed, for the first time, at least since 1994.

### Bursaries available

Find the latest news on bursaries in science, engineering and technology (SET) in the [NSTF Bursary Directory](#). Currently available are:

- [Shoprite Bursaries](#) (Deadline: 30 June 2020)
- [Kumba Iron Ore](#) (Deadline: 30 April 2020)
- [Sasol Bursary](#) (Deadline: 30 April 2020)
- [FMCSA Ford Bursary](#) (Open)
- [GAST Bursary Programme](#) (Open)

Visit the directory for information on bursaries, SET [career](#) guidance and inspirational [role models](#).

Providers of SET bursaries are welcome to make use of this service that is currently free of charge. E-mail your bursary advertisement to [enquiries@nstf.org.za](mailto:enquiries@nstf.org.za) and we will post it on our website.

This service is sponsored by the [Fuchs Foundation](#).

### 2019/2020 NSTF-South32 Awards

The full list of nominees for the [2019/2020 NSTF-South32 Awards](#) will be available on the NSTF website by no later than 6 April 2020. The finalists will be announced in May. The [Awards gala dinner](#), scheduled for 25 June 2020, has been postponed until further notice as a result of the COVID-19 pandemic.

[Click here](#) for more information on the 2019/2020 round of Awards.

### Discussion Forum on plant health – latest news

The NSTF Discussion Forum on Plant Health (aligned with [IYPH](#)) has been postponed. More information will follow in future issues of this eNewsletter. [Subscribe](#) to this newsletter to get the invitation firsthand.

The NSTF's theme for 2020 is Plant Health, aligned to the United Nations' [International Year of Plant Health](#) (IYPH2020).

### Prof Gita Ramjee

We learnt with sadness about the passing of Prof Gita Ramjee due to COVID-19. Our condolences to her family and colleagues.

## Share 'n Dare Activities

The activities of the NSTF's [Share 'n Dare programme](#) for March and April also had to be cancelled due to the outbreak of the COVID-19. We have asked the speakers – including four winners of the most recent [NSTF-South32 Awards](#) - who were to participate in these activities to send us their talks and, if possible, to record the talks. The talks will be made available on the NSTF website together with the existing [audio and video interviews](#). These will remain on the website and are a good resource for home learning and the classroom. ***Please spread this message as widely as possible so that many learners can be inspired by our award-winning researchers to follow careers in science, engineering, and technology.***

The Share 'n Dare programme, which promotes science, mathematics, engineering, technology and innovation among the youth, is sponsored by the [Carl and Emily Fuchs Foundation](#).

## Getting to know the 2018-2019 NSTF-South32 winners

### The Innovation Award: Small, Medium and Micro Enterprise

The Johannesburg based R&D (research and development) company, [Hydrox Holdings Ltd](#) was the winner of the 2018/2019 [NSTF-South32 Innovation Award](#) in the Small, Medium and Micro Enterprise (SMME) category. Their innovative production method to provide hydrogen inexpensively is also totally pollution free. Hydrox specialises in membraneless water electrolysis and are the developers of the patented Divergent-Electrode-Flow-Through (DEFTTM) Technology. This technology provides a cost effective and robust solution by removing the need for costly and degradable membranes. The prize was accepted by the Chief Executive Office and team leader, Mr Cornelis de Jager. [Read more](#).

### Communication Award

The [Wits Communications Services](#) team was awarded the 2018/2019 [NSTF-South32 Communication Award](#) thanks to their exceptional work in furthering awareness of science and research. Many of the campaigns undertaken by the team, such as the [Homo Naledi](#) fossil find and research, achieved global coverage and awareness. "The Wits Communications team is committed to making research and science accessible through creative strategies and multiple platforms to reach different audiences," says Ms Shirona Patel, head of communications at Wits. "This can only be successful through working with scientists and their extended teams around the world to make their work visible to various publics, both locally and globally." [Read more](#).

These articles are brought to you by the [Mail & Guardian](#), media partner of the [NSTF Awards](#).

## NSTF-South-32 winners and finalists are at the forefront in the battle against COVID-19 with research contributing to knowledge and understanding

South African researchers in fields such as epidemiology, communicable diseases, public health, biomedical engineering, tuberculosis (TB), HIV/AIDS, governance and many more are at the forefront of the battle against COVID-19 and research for treatments and vaccines. Together with their support staff, many of them are working towards mitigating this disastrous pandemic, or doing the kind of research that might form the foundation for ground-breaking discoveries regarding the novel coronavirus and its effect on immune-compromised individuals. Among them are former winners of and finalists for the [NSTF-South32 Awards](#). In this and future issues of NSTF eNews we are providing short profiles of a number of these remarkable people and their work.

**Prof Helen Rees**

South Africa is one of 10 countries involved in an urgent global trial announced by the World Health Organisation (WHO) to identify the most effective treatment for coronavirus. The leader of SA's effort is Prof Helen Rees, head of the Wits Reproductive Health & HIV Institute and chair of the WHO's immunisation advisory group for Africa. She played a major role in the fight against Ebola. Prof Rees was a winner of the [2014/2015 NSTF-South32 Awards](#) for her contribution over a lifetime.

#### **HIV/Aids research**

##### **Salim Abdool Karim**

Professors Salim Abdool Karim, Director of Centre for the AIDS Programme of Research in South Africa ([CAPRISA](#)) and Quarraisha Abdool Karim, University of KwaZulu-Natal, received the [2010/2011 NSTF-BHP Billiton Award for Research for Innovation](#), for their team's outstanding contributions to AIDS prevention through the landmark CAPRISA 004 study. Prof Salim Karim has published widely on infectious diseases, including AIDS, measles and hepatitis B and co-edited the textbook that is widely used to teach epidemiology in South Africa. Most recently, he co-edited the book, *HIV/AIDS in South Africa*.

#### **Tuberculosis research**

##### **Prof Bavesh Davandra Kana**

Professor: Research and Teaching; CEO of the DST/NRF [Centre of Excellence for Biomedical TB Research](#), University of the Witwatersrand; and Research Associate: CAPRISA. He was a finalist for the [2018/2019 Lifetime Award](#). Prof Kana is enhancing tuberculosis diagnosis using gene editing in bacteria. Modified bacterial organisms that mimic drug sensitive and drug resistant TB bacteria were constructed. These products were being marketed in over 20 countries to enable TB diagnosis.

##### **Prof Valerie Mizrahi**

Prof Mizrahi is Director of the [Institute of Infectious Disease and Molecular Medicine](#) and Professor, Department of Pathology; Director, [SAMRC/NHLS/UCT Molecular Mycobacteriology Research Unit](#); Co-Director, DST/NRF [Centre of Excellence for Biomedical TB Research](#), University of Cape Town. She was a finalist for the [2018/2019 Lifetime Award](#). Prof Mizrahi has used an integrated genetic, biochemical and physiological approach to understanding aspects of the metabolism and physiology of *M. tuberculosis* of relevance to TB drug resistance, persistence and drug discovery. Her research has led to a number of novel insights into the biology of *M. tuberculosis* that have profound implications for the development of new tools for the control of TB.



proSET (Professionals in science, engineering and technology) is a sector of the NSTF representing about 40 professional and learned societies. This section shares news about members of the proSET sector.

#### **Southern African Association for Research in Mathematics, Science and Technology Education ([SAARMSTE](#))**

The 6th International Conference of The Mathematics Education for the Future Project is provisionally planned for September/October 2021 in Cluj Napoca, Romania. The

Mathematics Education for the Future Project was founded in 1986 as an international non-profit body to support and encourage innovation in mathematics, statistics, science and computer education. Since 1999 there have been 15 conferences throughout the world culminating in an Ireland Conference in August 2019, which was attended by 188 people from 31 countries. The conferences attract many of the movers and shakers in education world-wide.

#### **Consulting Engineers South Africa (CESA)**

The CESA Infrastructure Indaba, which took place from 11-12 March 2020, was a successful move for reflection, renewal and regeneration in the construction industry. CESA CEO Chris Campbell had this to say: "This annual event is not just a talk-shop. We pride ourselves in being action-oriented. Over the last two days, I think we can agree that there are some key resolutions we can take forward, which will be a start in solving the problems we are facing as an industry." [Read more.](#)



#### **SET-related policies currently open for public comment**

Policies open for comment allow the science, engineering and technology (SET) community to keep track of the changing regulation environment.

- [Marketing of Agricultural Products Act: Request for continuation of SAGIS statutory measures](#) Comment by 30 April 2020

#### **SET-related policy news**

*Some articles included in the section below are opinion pieces. The opinions expressed in these articles do not necessarily reflect the views of the NSTF Executive Committee, Directors, Secretariat or Members.*

##### **Policy**

- [Bold programmes are needed to mitigate the economic crisis](#) (wits.ac.za)

##### **Climate**

- [Covid-19, #ClimateEmergency and Lockdown](#) (wits.ac.za)
- [Global emissions are way off target: what needs to happen](#) (theconversation.com)

##### **4<sup>th</sup> Industrial Revolution and technology**

- [The global outbreak of COVID-19 has brought the world's digital divide into sharp focus](#) (engineerit.co.za)
- [Telecoms, networks vital in response to COVID-19](#) (itweb.africa)

##### **Education**

- [Kids can keep learning even during a lockdown. Here's how](#) (theconversation.com)
- [New evidence supports the belief that South Africa's education is not all bad](#) (theconversation.com)

##### **Infrastructure**

- [Criminal gangs and coronavirus threaten safety in construction industry](#) (infrastructurenews.co.za)
- [Waste collection is essential during the national lockdown](#) (infrastructurenews.co.za)
- [Government to spend on health infrastructure](#) (youtube.com - SABC News)

### Medicine and Health

- [South Africa participates in COVID-19 clinical trial](#) (sanews.gov.za)
- [Science department allocates R4m to fund COVID-19 research](#) (itweb.co.za)
- [Can you pause a pandemic? Inside the race to stop the spread of COVID-19 in South Africa](#) (bhekisisa.org)
- [The facts beat the quacks: Our #Covid19SA vs. our #HIV response](#) (bhekisisa.org)
- [Why a one-size-fits-all approach to COVID-19 could have lethal consequences](#) (theconversation.com)



*The events posted below are correct as far as we could establish at the time of preparing this newsletter. Please check the relative websites for changes to dates and venues.*

- [Scifest Africa 2020](#): Makhanda, Eastern Cape, 15-21 April 2020 **CANCELLED**
- [Working World Exhibition 2020](#): Port Elizabeth, 21-23 April 2020 **POSTPONED to 14-16 July 2020**
- [16th International Conference on Space Operations](#): Cape Town 18-22 May 2020 **POSTPONED to 3-7 May 2021**
- [Water Institute of South Africa 2020 Conference](#): Johannesburg, 31 May - 4 June 2020 **POSTPONED to 5-9 December 2020**
- [Manufacturing Indaba](#): Johannesburg, 9-10 June 2020
- [14th International Conference on CFD In the Oil & Gas, Metallurgical and Process Industries](#): Trondheim, Norway 9-11 June 2020 **The organising committee is CONSIDERING CANCELLING OR POSTPONING the conference**
- [XVIII Triple Helix Conference](#): Tampere, Finland, 15-17 June 2020. **TO BE ANNOUNCED on 15 April whether it will be held on site or online**
- [International Agrifood Conference IFAMA 2020](#): Rotterdam, the Netherlands, 15-18 June 2020
- [2020 Africa Energy Forum](#): Barcelona, Spain, 30 June – 3 July 2020
- [Agbiz Congress 2020](#): Building resilient and sustainable agri-food ecosystems: Sun City, 15-17 July 2020. **POSTPONED to 7-9 April 2021**
- [3rd African Symposium on Mycotoxicology](#): Stellenbosch, 6-9 September 2020
- [SA Innovation Summit](#): Cape Town, 30 September – 2 October 2020
- [25th WasteCon 2020](#): Johannesburg, 6-8 October 2020
- [IMESA Conference](#): Cape Town, 28-30 October 2020
- The 7th [World Conference of Research Integrity](#) is to be hosted by UCT in 2021
- [23rd International Congress of Zoology](#): Cape Town, 21-25 November 2021

Some articles included in the section below are opinion pieces. The opinions expressed in these articles do not necessarily reflect the views of the NSTF Executive Committee, Directors, Secretariat or Members.

### Universities and higher education

- [Wits heroes confront COVID-19](https://wits.ac.za) (wits.ac.za)
- [COVID-19: Food security is about more than fully-stocked supermarket shelves, says the Centre of Excellence in Food Security at UP and UWC](https://up.ac.za) (up.ac.za)
- [UCT alumni build 'Coronapp' platform](https://uct.ac.za) (uct.ac.za)
- [SU and local biotech company tackle COVID-19 together](https://sun.ac.za) (sun.ac.za)

### Science Councils and Statutory Organisations

- [HSRC commences public survey to assess awareness of Covid-19 among South Africans](https://hsrc.ac.za) (hsrc.ac.za)

### Research

- [A year without conferences? How the coronavirus pandemic could change research](https://nature.com) (nature.com)
- [Recognising Individual Contributions to Collaborative Research](https://assa.org.za) (assa.org.za)

### Palaeontology

- [A tiny bone from Little Foot's skeleton adds fresh insights into what our ancestors could do](https://theconversation.com) (theconversation.com)
- [Ancient bird skull found in amber was tiny predator in the time of giant dinosaurs](https://theconversation.com) (theconversation.com)

### Ichthyology

- [Live coelacanth discovered off the KwaZulu-Natal South Coast, South Africa](https://sajs.co.za) (sajs.co.za)

### Materials science

- [All materials great and small](https://sajs.co.za) (sajs.co.za)  
The author, Professor Alexander Quandt is the recipient of the 2018/2019 NSTF-South32 Special Annual Theme Award: Materials for Inclusive Economic Development (in recognition of the United Nations 'International Year of the Periodic Table of Chemical Elements').

### Medicine and health

- [Coronavirus Disease 2019 \(COVID-19\) News and Resources from the National Academies of Sciences, Engineering, and Medicine](https://nam.edu) (nam.edu)
- [Slightly dirty water 'still ok' against coronavirus](https://scidev.net) (scidev.net)
- [Scientists are still searching for the source of COVID-19: why it matters](https://theconversation.com) (theconversation.com)

- [Why preventing TB could be as easy as 1,2, 3HP](http://bhekisisa.org) (bhekisisa.org)
- [Don't rush to deploy COVID-19 vaccines and drugs without sufficient safety guarantees](http://nature.com) (nature.com)
- [Analysis of millions of coronavirus tweets shows 'the whole world is sad'](http://washingtonpost.com) (washingtonpost.com)
- [Zero incidents of COVID-19 transmission from print surfaces](http://inma.org) (inma.org)
- [Medical historian collects waste at public sites](http://eNCA.com) (eNCA.com)
- [Are Viruses Alive? Define Life.](http://daily.jstor.org) (daily.jstor.org)
- [A brief history of the coronavirus family – including one pandemic we might have missed](http://theconversation.com) (theconversation.com)

## Environment, climate change and energy

### Climate change

- [Water resources are essential to climate change action](http://infrastructurenews.co.za) (infrastructurenews.co.za)
- [Covid-19, #ClimateEmergency and Lockdown](http://wits.ac.za) (wits.ac.za)

### Environment

- [It's time for long-term thinking](http://mg.co.za) (mg.co.za)

### Energy

- [Renewable energy project supports West Coast entrepreneurs](http://energize.co.za) (energize.co.za)
- [Energy company and tech group team up](http://energize.co.za) (energize.co.za)

## Agriculture

- [The economics of a pandemic: the case of Covid-19](http://agbiz.co.za) (agbiz.co.za – London Business School)

## Technology and the 4<sup>th</sup> Industrial Revolution

- [IBM Supercomputer Identifies 77 Compounds That Could Fight Coronavirus](http://engineerit.co.za) (engineerit.co.za)
- [COVID-19 News: HIV/AIDS Detection Tech Adapted to Fight Coronavirus](http://itnewsafrika.com) (itnewsafrika.com)
- [Coronavirus-themed security attacks on the increase](http://engineerit.co.za) (engineerit.co.za)
- [OPTIMIZING - Leading Africa's Digital Future](http://wits.ac.za) (wits.ac.za)
- [Hasty cloud adoption increases companies' risk profile](http://engineerit.co.za) (engineerit.co.za)
- [Digital platforms launch as SA prepares for coronavirus battle](http://itweb.co.za) (itweb.co.za)
- [The world-wide shortage of ventilators drives new developments at the University of Oxford and King's College to manufacture a rapidly deployable unit](http://engineerit.co.za) (engineerit.co.za)
- [IoT will become the biggest user of edge computing amidst increasing security concerns](http://engineerit.co.za) (engineerit.co.za)
- [Map that makes #CoronavirusinSA numbers meaningful](http://mediahack.co.za) (mediahack.co.za)
- [RFID is a 'must-have' technology](http://engineerit.co.za) (engineerit.co.za)

## Infrastructure

- [Locally made minisub offers sophisticated features and protection](http://energize.co.za) (energize.co.za)

## Science awareness

- [Choose science to halt climate change](http://energize.co.za) (energize.co.za)

## Opportunities

- [Van Schaik Announces Innovative Digital “Influencer Search” Campaign to Assist Students while South African Universities Remain Closed](http://www.vanschaik.com) (www.vanschaik.com)
- The Human Sciences Research Council (HSRC) seeks to appoint a person who will lead the HSRC in implementing its five-year strategic plan. This is a contract position for five years and may be renewable for a second term at the discretion of the Board. Minimum requirements include a PhD degree in a Social Sciences or Humanities field and at least 15 years of leadership experience in an academic/research environment, 10 of which must be at executive level. Applications should be submitted by no later than **30 April 2020**. Contact the Secretary of Council, Marizane Rousseau, by e-mail at [mrousseau@hsrc.ac.za](mailto:mrousseau@hsrc.ac.za) for more information.



- [Ten top young scientists selected for prestigious Lindau Nobel Laureate Meeting](http://assaf.org.za) (assaf.org.za)
- [Phillip C. Heemstra \(1941–2019\): Ichthyologist extraordinaire](http://sajs.co.za) (sajs.co.za)

### About the NSTF

The [National Science and Technology Forum](http://www.nstf.org.za) (NSTF), established in 1995, is a broadly-representative stakeholder body for all science, engineering and technology (SET) and innovation organisations in South Africa, which seeks to influence policy formulation and delivery.

The [NSTF Awards](#) are unique in SA, recognising the outstanding contributions of individuals and groups to SET and innovation.

The [science bursaries](#) page provides information on bursaries and bursary providers for science, engineering and related studies.

#### Disclaimer

The NSTF has taken all practical measures to ensure that the material contained in this newsletter is correct. The NSTF reserves the right to make changes as it deems necessary.

#### Privacy

Registration details submitted to the NSTF will be treated confidentially and will only be used by NSTF to communicate with its members and subscribers.

### For more information

[www.nstf.org.za](http://www.nstf.org.za)

E-mail: [enquiries@nstf.org.za](mailto:enquiries@nstf.org.za)

Tel: [+27 12 841 3987](tel:+27128413987)

Non Profit Company Registration Number: 2007/029165/08

NPO Registration Number: 92042