

brightness²



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Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



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The 2nd SA-BrightnESS² Workshop
“ Virtual Mini-Symposia” ZOOM / MS Teams Platform
• **August to September 2020**
• **2.0 – 2.5 hours**

Contact SA-BrightnESS2 team for more information and program for each mini-symposium:

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Thrust Areas	Coordinator(s)	Date and time
Neutrons for Engineers	Mark Newby (Eskom) and Danie Hattingh (NMU)	05 August 2020; 14:00 – 16:00
Crystallography: Organic Chemistry	Catharine Esterhuysen (SUN)	25 August 2020; 10:00 – 12:00
Magnetism	André Strydom (UJ)	07 September 2020; 14:00 – 16:00
Geosciences	Albertus Smith (UJ)	10 September 2020; 10:00 – 12:00
Energy Storage & Conversion Materials	Kenneth Ozoemena (Wits)	15 September 2020; 14:00 – 16:00
Palaeontology & Heritage Conservation	Amélie Beaudet (Wits)	18 September 2020; 14:00 – 16:00
Catalysis /synthesis	Nico Fischer (UCT)	22 September 2020; 13:00 – 15:00
Crystallography: Inorganic Chemistry	Dave Billing (Wits)	23 September 2020; 11:00 – 13:00
Nanomaterials	Ray Suprakas (CSIR) and Malik Maaza (iThemba LABS)	28 September 2020; 14:00 – 16:00
Life Sciences and Biology	Maria Papathanasopoulos (Wits)	30 September 2020; TBC



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The logo for BrightnESS² features the word "brightness" in a green, lowercase, sans-serif font, with a superscript "2" in a smaller green font to its upper right.

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Overview

The European Spallation Source (ESS), <https://europeanspallationsource.se/>, under construction in Lund, Sweden, is a partnership of countries committed to the goal of building and operating the world leading facility for research using neutrons. The capabilities of the ESS facilities will both greatly exceed and complement those of today's leading neutron sources in amongst others flux and resolution. This enables new opportunities for researchers across the spectrum of scientific discovery, including materials and life sciences, energy, health, environmental technology, cultural heritage and fundamental physics. BrightnESS² (<https://brightness.esss.se/>) is an integrated program in support of long-term sustainability of the ESS, its community, and the network of neutron sources in Europe and beyond. To emphasize the importance of access to global infrastructure and global networking that the BrightnESS² program provides, the South African consortium under the leadership of the Department of Science and Innovation is exploring options to participate in this program. The collaboration will provide SA researchers access to research infrastructure capabilities not available in the country, but needed to conduct competitive research using neutron science and scattering techniques.

South Africa's interest in BrightnESS² stems from the fact that it has a long history of research using neutrons provided by the two key national facilities, NRF/iThemba LABS (<https://tlabs.ac.za/>) and Necsa (<http://www.necsa.co.za/>). Given the focus areas in these facilities, complemented by South African researchers utilising other facilities internationally, there is always an inquisitive need to access alternatives or enhanced capabilities. Within the SA BrightnESS² program the SA consortium seeks to expand the neutron landscape available to researchers by following a two-pronged approach: 1) assess the activities where SA researchers are actively involved in using neutron-based techniques in their research; 2) to familiarise potential new users to the existing and future research prospects that neutron sciences can offer. The traditional thermal neutron beam line techniques existing at Necsa can be vastly complemented and expanded with the availability of the ESS suite of facilities in scattering based applications with the added enhanced sensitivities of cold neutron beams in the study of pertinent topics in health, biology cultural heritage and agriculture.



BrightnESS² is funded by the European Union Framework Programme for Research and Innovation Horizon 2020, under grant agreement 823867

Input required from the Research Community

The aim of these mini-symposia is to put together a Position Paper as requested by the Department of Science and Innovation that answers the following questions:

- SWOT analysis specifically related to our research interests and from this identify:
 - a. What are the compelling science questions and issues that can be addressed with neutron techniques?
 - b. How can we engage meaningfully in these questions?
 - c. What are the niche scientific areas that these could contribute to?
 - d. What is the format of access do we require for South African facilities at Necsa (SAFARI-1) and iThemba LABS, as well as abroad with the ESS?
 - e. What capacities do we need to develop as a country so that we can optimize the value adding that neutron techniques can offer?