

*IThemba Labs UJ Visit Report
-On Behalf of-
Department of Experimental Particle Physics
and Applications,
M. Smoluchowski Institute of Physics,
Jagiellonian University,
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J-PET (Jagiellonian-PET TOMOGRAPHY) group had the honor to host a delegation from iThemba LABS (Laboratory for Accelerator-Based Sciences) Republic of South Africa, from 28-30 November 2022. We were graced by the delegation led by Dr. Faiçal Azaiez (Director), Dr. Rudolph Nchodu (Deputy Director) and their team. This marked their first visit to Jagiellonian University, Poland to sort partnership, exchange of knowledge and collaborations in various physics disciplines. IThemba Labs serves as South Africa's particle accelerator center, they advance isotope science and technology, both fundamental and applied. They have been collaborating across communities and disciplines, from nuclear and particle physics to the life and material sciences. One of their themes is to "discover, innovate, inspire, educate, creating knowledge and opportunity for all". The visitors gave a brief background of what IThemba Labs is all about, its existence, aims, objectives, values and present-day projects which are being



implemented at the institution such as the iThemba Laboratories for Accelerator Based Science (LABS) which is committed to invest in the growth and development of scientific and technical talent, with a special focus on creating opportunities for women and designated communities.

Dr. Faiçal Azaiez (Director) in the Middle flanked by dr. hab. Ewa Stepien, prof UJ and prof. dr hab. Pawel Moskal

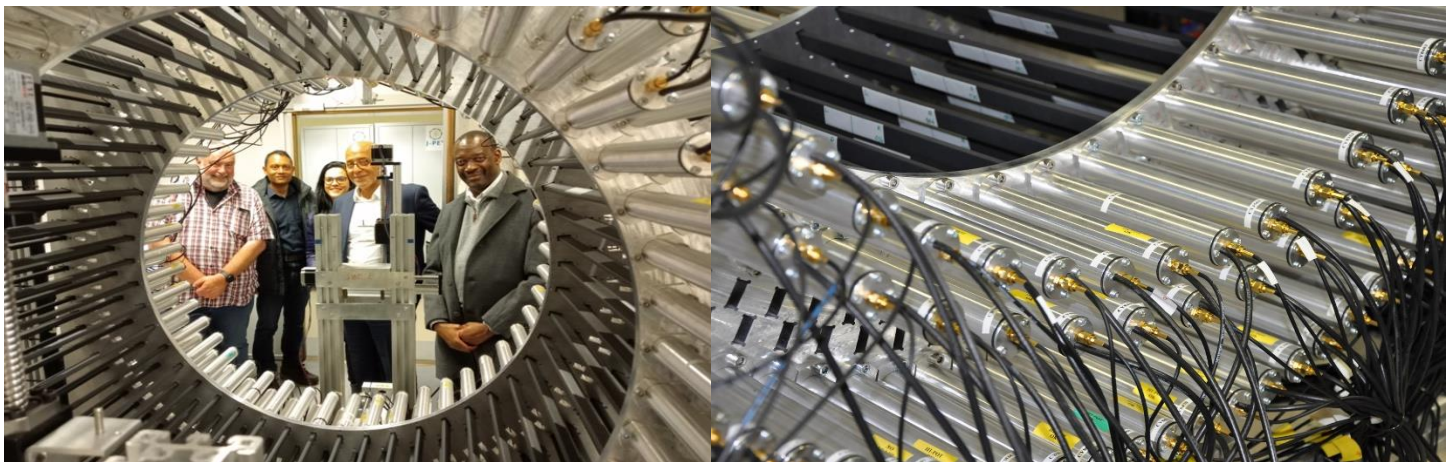
Dr. Faiçal Azaiez emphasized on the issue of collaboration with Jagiellonian University on PET Imaging, isotopes production, theranostics projects and hadron physics with Jagiellonian

University. One interesting proposal that he Lamented was of exchange program for Ph.D. Students, according to him this would be important for the students to understand modern technologies which is being implemented around the world and to apply them in their home



Dr. Faiçal Azaiez (Director) giving a lecturer on IThemba Labs

country. Another striking piece of information they gave us was how they have been managing to fund their projects and expansion with the money that they are generating from the sell of isotopes that they produce. It must be known that their institute is the only producer of ^{22}Na in the whole world which is used for radiopharmaceuticals and others.



iThemba Labs Delegation with a J-PET Scanner from Left Dr Pete Jones, Dr Randall Fisher, Dr Monique Engelbrecht, Dr Faical Azaiez and Dr Rudolph Nchodu

The iThemba delegation in addition, managed to visit the Positronium Annihilation Lifetime Spectroscopy (PALS) laboratory and viewed the J-PET tomography and lastly the medical laboratory where they were shown our recent and ongoing experiments.

iThemba Labs has a Radiation Biophysics Division which has a long-standing expertise in medical research projects related to proto and neutron therapy. The main purpose of this division is medical physics and radiology. Dr Randall Fisher and Monique Engelbrecht managed to give a presentation



on Biodosimetry projects and proton versus Xray based radiotherapy thus combined therapy with drugs and radiation, gold nanoparticles in radiotherapy and new radiopharmaceuticals. One interesting project under the Radiation Biophysics Research includes the Research on tumor-suppressor gene: “What can we learn from African elephants?”. With the ultimate goal to design a drug that duplicates the effect of the tumor suppressor gene to prevent and treat human cancer

Lastly, they were shown the most prestigious and talked about, patented project that is the use of Extravesicles as cancer biomarkers. Lastly, considering the theranostics projects performed in both institutes it is clear that something tangible can come out of this union through the advancement of sharing ideas and the existence of comparable work. It goes without saying that it was not only a please and an honor to host the iThemba Lab delegates but also an eye-opening opportunity to the future prospects of what could be.!!!



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Research on tumor-suppressor gene:
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