



UNIVERSITY OF
KWAZULU-NATAL[™]
INYUVESI
YAKWAZULU-NATALI

College of Agriculture, Engineering and Science
School of Chemistry & Physics

The Vice-Chancellor and Principal
Dr Albert Van Jaarsveld

cordially invites you to the

Official Opening of the Peptide Sciences Laboratory, and the Laser Chemical Vapour Deposition and Thin Films Laboratory

Date: Wednesday, 7 March 2018

Venue: Building H (Chemistry and Physics), Westville Campus

Programme:

10h30 to 13h45: **Laboratory tour:** Tea Lounge, 3rd floor

14h00: **Official Opening:** FSA Room, 2nd floor

Cocktails

Guest Speaker: Barlow Manilal: CEO, Technology Innovation Agency

The new laboratories are aligned with the concept of better overlap between UKZN and Industry. As such the School is hosting potential partners to visit our laboratories in the morning and interact with the academic and technical staff. This informal session will be devoted to networking and highlighting some of the new projects that the school is embarking upon which will provide a better service to the local industry.

ENQUIRIES: Leena Rajpal • Email: rajpall@ukzn.ac.za • Tel: 031 2607065/ 8740/ 7878
To RSVP, [CLICK HERE](#), by no later than **2 March 2018 (Do not use MS Explorer)**

INSPIRING GREATNESS

The School of Chemistry and Physics (SCP) will mark the opening of the combined R14 million Peptide Sciences Laboratory, and a Laser Chemical Vapour Deposition (LCVD) and Thin Films Laboratory facilities on the Westville campus.



The **Peptide Sciences Laboratory** is devoted to the study of peptides, an important class of drugs, and has a multidisciplinary focus. Peptides as drugs show unique characteristics such as high biological activity, high specificity, and low toxicity that make them particularly attractive therapeutic agents for prominent metabolic and infectious diseases, as well as cancer. Peptide drugs could also potentially be used for treatments in allergy and immunology, the central nervous system, and pain treatment. In medicine, they can also be used as carriers in drug delivery systems or to coat metal prostheses to minimise the risk of infections. This has led to a growing demand for intensified research into peptide application.

To date there has seen success in the introduction of one peptide to the market for cancer treatment, with a second undergoing preliminary clinical trials.

The **Peptide Science Laboratory** will also focus on the study of other biomolecules such as oligonucleotides (DNA) or peptide acid nucleics (PNA) with applications in the pharmaceutical industry.

The applications for use of peptides does not end with the pharmaceutical industry; the short chains of amino acid monomers linked by peptide (amide) bonds are also used as ingredients in cosmetics, especially in products marketed as having anti-wrinkle, anti-age and anti-acne properties, as well as to remove skin spots. The antimicrobial properties of some peptides also make them ideal candidates for use in the food industry. They can be used in the preparation of Biomaterials in Nanotechnology.



The **LCVD and Thin Films Laboratory** includes PLD/ MBE 2300 equipment and a state-of-the-art pulsed laser deposition system that is capable of depositing atomically thin layers of most solid materials onto any substrate material up to 50mm in diameter.

Thin films, and multi-layered thin films, form the backbone of most modern functional devices such as integrated chips in computers, computer hard-drives, solar cells, superconducting materials, ultra-hard coatings, hi-tech sensors and optical coatings. The system incorporates a pulsed KrF excimer laser at wavelength of 248nm, which can be used to ablate up to six targets sequentially in a high vacuum deposition chamber. The system is also unique for

its two direct current (DC) and one radio frequency (RF) sputter magnetrons, which increase its capability to sputter different types of materials to produce uniform thin films.

The target material can be either in its pure elemental form or as a hard alloy or compound. The system, designed for basic and applied research, will allow the creation and study of advanced thin film devices which can be produced on the laboratory scale. Examples of such applications would include complex solar cell structures and energy harvesting devices, functional optical coatings, magnetic memory devices and chemical sensors. The system has a load lock facility which enables 2 samples to be deposited without breaking high vacuum.