

Materials science and manufacturing

CSIR shines at biomaterials symposium

Eleven papers were delivered on CSIR research activities in the field of biomaterials at the 2nd annual biomaterials symposium held by the Biomaterials Association of South Africa (BioMatASA).



CSIR researchers delivered no fewer than 11 papers at the 2nd annual biomaterials symposium

BioMatASA was founded following a joint initiative between the CSIR and the University of the Witwatersrand aimed at stimulating interest and collaboration in the sophisticated, multidisciplinary research field of biomaterials science. The association is now represented nationally by more than 70 members from academia, industry, science councils and the medical fraternity. Biomaterials science forms the foundation of the multibillion dollar applied medical industry.

A biomaterial can be defined as any material, synthetic or natural in origin, which can be used to treat, augment or replace any tissue, organ or function in the human body. Accordingly, biomaterials science is a combination of materials science, cell biology and medical implant technology.

Biomaterials are being employed in diverse areas, such as synthetic medical implants, tissue regeneration scaffolds, drug delivery systems and molecular signalling devices, as well as in many non-clinical applications, such as water purification and metal extraction. Internationally, the field is growing at a dramatic pace and local research efforts are beginning to gain momentum.

Research activities at the CSIR and in particular in the materials science and manufacturing field focus on bioceramic implants for bone replacement, soft-tissue regeneration using polymeric particles, intelligent stimuli-responsive polymers, novel drug delivery formulations and non-woven fibre scaffolds as matrices for biological applications.

The CSIR-developed bioceramic orbital Eyeborn™ implant has undergone successful clinical trials and commercialisation with more than 300 patients in South Africa. The CSIR National Laser Centre also showcased its optical coherence tomography (OCT) system at the symposium as an imaging tool for biomaterials and its integrating sphere system, which can be used to determine optical properties of human tissue.

CSIR researcher, Avashnee Chetty, said the average human life expectancy is currently around 80 years in first world countries (compared to about 49 years a century ago). Most people will outlive their healthy tissues and organs and will at some point require medical intervention to restore a diseased or damaged body part. Due to the worldwide shortage of donor organs and tissues and the immunogenic risk associated with transplants, the need and demand for man-made biomaterials is

escalating. "Seen against the high trauma rate that is synonymous with South Africa, biomaterials research is important and very relevant to this country," says Chetty. More information on BioMatASA is available at www.biomatasa.org.za.

[Copyright](#) © CSIR 2007. All Rights Reserved. Page last revised on 3/3/2008
Tel: + 27 12 841 2911, technical enquiries: + 27 12 841 2000, fax: +27 12 349
1153, web site feedback: [web team](#)

[top](#)

