

Plasma-assisted surface engineering of electrospun materials for tissue engineering purposes

The plenary talk of Prof. De Geyter will elaborate on the application of non-thermal plasmas in the development and functionalization of electrospun materials for tissue engineering purposes. A first part will focus on plasma treatment of poly- ϵ -caprolactone (PCL) and polylactic acid (PLA) solutions prior to electrospinning in an effort to enhance their electrospinnability. A second part of the lecture will be dedicated to the plasma functionalization of electrospun PCL materials making use of nitrogen-containing gases in an effort to increase cellular interactions and protein adhesion on PCL nanofibers. Within this context, attention will also be given to the effect of different sterilization methods on the plasma-modified surfaces, which need to be conducted prior to cell studies. Finally, a plasma-based polymerization approach to create NH_2 -rich nanofibers will also be explained in detail to improve cell adhesion and proliferation on the nanofibers. Within this part of the lecture, specific attention will be paid to the stability of the plasma-polymerized coatings which is crucial when applying them as biomedical implants.

SHORT BIO

Nathalie De Geyter, born in 1981 in Zottegem (Belgium), graduated as a Master of Science in Materials Engineering (Option textiles and polymers) at Ghent University in 2004. In 2008, she completed her PhD at the same university. Her dissertation dealt with the surface modification of polymeric surfaces using non-thermal plasmas at medium pressure. From 2008 till 2014, she held a position as post-doctoral assistant at Ghent University and initiated a new research line focusing on plasma polymerization experiments. During her PhD and post-doctoral studies, she often travelled to the University of Lille 1 (France) for several short research periods. In February 2014, Nathalie De Geyter was appointed a research professorship at Ghent University (Belgium), thanks to her obtained ERC starting grant PLASMATS. At this point, she is supervising a research team of over 10 PhD students, performing interdisciplinary research on plasma technology for biomedical applications. She is currently the author or co-author of more than 85 papers in international peer-reviewed journals and has presented her work on over 40 international conferences. Her current research interests are focused on plasma surface modification of materials used for (bio)medical applications and plasma medicine.



Contact: Nathalie.DeGeyter@UGent.Be

Publications: <https://biblio.ugent.be/person/801001862760>