**Research Interest**

- Nanofabrication via directed self-assembly of (bio-) copolymers at different dimensions and length scales
- Functional nanostructured hybrid (bio-) materials
- Nanoparticles synthesis, size control and assembly at 1D-, 2D-, and 3D-dimensions
- Fabrication of nano-objects as markers to study complex biological systems
- Bio-inspired hybrid materials based on dendrimers templating inorganic moieties
- Nanofiber fabrication via electrospinning for biomaterial applications
- Exploration of simple synthetic approaches (in-situ) combined with external stimuli to fabricate functional nanocomponents possessing unique physical properties for new generation miniaturized devices
- Rheology of polymeric materials and hybrid systems

**Publication list**

**Publications 2019**


**Publications 2018**


Sanaa Ben Djemaa (a1), Mathias Pacaud (a1) (a2), Katel Herve-Aubert (a1), Stephanie David (a1), Emilie Allard-Vannier (a1), Emilie Munnier (a1), Anastasia Ignatova (a3), Amir Fahmi (a2), Alexey Feofanov (a3) (a4) and Igor Chourpa; Fluorescence Microscopy as a Tool for
Nanomedicine-Cell Interactions Study: Input of Particle Design and of Analytical Strategy
Volume 24, Microscopy & Microanalysis, Vol 24, 2018 , p. 1316

Publications 2017

Ahmed Al-Kattan, Viraj P. Nirwan, Emilie Munnier, Igor Chourpa, Amir Fahmi and Andrei V. Kabashina; Towards multifunctional hybrid platforms for tissue engineering based on chitosan (PEO) nanofibers functionalized by bare laser-synthesized Au and Si nanoparticles, RSC Adv., 2017, 7, 31759-31766

Viraj P. Nirwan, Amir Fahmi, Michael Malkoch; Electrospinning of hybrid nanofibres elaborated with PEG core dendrimers and SPIONs synthesized in-situ: As multifunctional material for biomedical applications, Nanomaterials: Application & Properties (NAP), 03NNSA37-1 (2017)

Publications 2016

B Mahltig, J Zhang, MA Huth, A Fahmi; Microstructuring of metal effect pigments in functional coatings on textile substrate The Journal of The Textile Institute, 1-5

V Astachov, M Garzoni, A Danani, KL Choy, GM Pavan, A Fahmi; In situ functionalization of self-assembled dendrimer nanofibers with cadmium sulfide quantum dots through simple ionic-substitution New Journal of Chemistry 40, 6325-6331

A Fahmi Self-assembly powerful tool in nanofabrication of structured hybrid materials BMBF-ZENIT

Publications 2015

T Pietsch, P Mü ller-Buschbaum, B Mahltig, A Fahmi ; Nanoporous Thin Films and Binary Nanoparticle Superlattices Created by Directed Self-Assembly of Block Copolymer Hybrid Materials ACS applied materials & interfaces 7 (23), 12440-12449

A Sousa-Herves, CS Espinel, A Fahmi, Á González-Fernández; In situ nanofabrication of hybrid PEG-dendritic–inorganic nanoparticles and preliminary evaluation of their biocompatibility Nanoscale 7 (9), 3933-3940

A Fahmi; Bio-inspired tools based on self-assembled hybrid 1D-nanostructure in nanomedicine applications EuroNanoforum

Publications 2014


H Haase, A Fahmi, B Mahltig ; Impact of silver nanoparticles and silver ions on innate
immune cells **Journal of biomedical nanotechnology** 10 (6), 1146-1156

A Fahmi; Frontiers in Nanofabrication via Self-Assembly of Hybrid Materials into Low Dimensional Nanostructures **Organic-Inorganic Hybrid Nanomaterials**, 351-379

**Publications 2013**


N. Cheval, V. Kampars, C. Fowkes, N. Shirtcliffe, A. Fahmi; Assembly of Poly-3-Hexylthiophene Nano-Crystallites into Low Dimensional Structures Using Indandione Derivatives **Nanomaterials** 3, 1, 107 (2013)

B. Mahltig, B. Tatlises, A. Fahmi, H. Haase; Dendrimer stabilized silver particles for the antimicrobial finishing of textiles **The Journal of the Textile Institute** in press

G. Toskas, C. Cherif, R.-D. Hund, E. Laourine, B. Mahltig, A. Fahmi, C. Heinemann, T. Hanke; Chitosan(PEO)/silica hybrid nanofibers as a potential biomaterial for bone regeneration **Carbohydrate Polymers** in press

**Publications 2012**


F. Xu, A. Fahmi, Y. Zhao, Y. Xia, Y. Zhu; Patterned growth of tungsten oxide and tungsten oxynitride nanorods from Au-coated W foil **Nanoscale** 4, 7031 (2012)

B. Mahltig, N. Cheval, V. Astachov, M. Malkoch, M. I. Montañéz, H. Haase, A. Fahmi; Hydroxyl functional polyester dendrimers as stabilizing agent for preparation of colloidal silver particles - a study in respect to antimicrobial properties and toxicity against human cells **Colloid and Polymer Science** 290, 1413 (2012)


B. Mahltig, L. Vossebein, A. Ehrmann, N. Cheval, A. Fahmi; Modified silica sol coatings for surface enhancement of leather **Acta Chimica Slovenica** 59, 331 (2012)

N. Cheval, N. Gindy, C. Flowkes, A. Fahmi; Polyamide 66 microspheres metallised with in-
situ synthesised gold nanoparticles for catalytic application Nanoscale Research Letters 7, 182 (2012)

Publications 2011


C. Mendoza, N. Gindy, M. Wilhelm, A. Fahmi; Linear and non-linear viscoelastic rheology of hybrid nanostructured materials from block copolymers with gold nanoparticles Rheologica Acta 50, 3, 257 (2011)

N. Cheval, N. Gindy, R. Brooks, Y. Zhu, A. Fahmi; Morphology, crystallinity behaviour and thermal properties of polyamide 66/polyoxometalates nanocomposites synthesised via the in-situ Sol-Gel method Macromolecular Physics and Chemistry 212, 180 (2011)


G. Toskas, C. Cherif, R.-D. Hund, E. Laourine, A. Fahmi, B. Mahltig; Inorganic/Organic (SiO2)/PEO Hybrid Electrospun Nanofibers Produced from a Modified Sol and Their Surface Modification Possibilities ACS Appl. Mater. Interfaces 3, 9, 3673 (2011)

Publications 2010


N. Cheval, F. Xu, N. Gindy, R. Brooks, Y. Zhu, A. Fahmi; Reinforcement of Polyamide 66 with Polyoxometalates Nanoparticles through the In Situ Sol-Gel Method Key Engineering Materials 450, 169 (2010)
**Publications 2009**


C. Mendoza, T. Pietsch, N. Gindy, A. Fahmi; Directed Self-Assembly of Block-copolymer-nanoparticle hybrids through Large Amplitude Oscillating Shear *Macromolecules* 42, 1203 (2009)


C. Mendoza, A. Fahmi; In-situ synthesis and alignment of hexagonally ordered gold nanocylinders from diblock copolymers in bulk *Langmuir* 25, 9571 (2009)


A. Fahmi, T. Pietsch, C. Mendoza; Self-assembly of hybrid material: powerful tool for nanofabrication *Material today* 12, 44 (2009) (invited article)

**Publications 2008**


**Publications 2003- 2007**


Books


A. Fahmi, D. Appelhans, A. Danani, G. M. Pavan, B. Voit; Dendrimer in biomedical applications, Dendrimer-based hybrid fibers as potential platform for 1D-objects in nanotechnology RSC (Chapter in book)