

Curriculum Vitae - Prof. Dr. Aleksandr Ovsianikov

Head of the Group 3D Printing and Biofabrication
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Major Research Interests: (1) High-Definition Bioprinting / Photosensitive Bioinks; (2) Additive manufacturing / laser-induced photochemistry; (3) Biocompatible / biodegradable photopolymers; (4) Scaffold based tissue engineering; (5) 3D tissue models.

Aleksandr Ovsianikov is the head of the Group 3D Printing and Biofabrication at the TU Wien. His research is dealing with the use of additive manufacturing technologies for tissue engineering and regenerative medicine. Dr. Ovsianikov has background in laser physics and material processing with femtosecond lasers. A particular focus his current research is establishing multiphoton lithography in the domain of biofabrication for engineering of biomimetic 3D cell culture matrices and realization of novel tissue engineering scaffolds. Dr. Ovsianikov was awarded a prestigious Starting Grant in 2012 and a Consolidator Grant in 2017 from the European Research Council (ERC) for projects aimed at these topics. His research interests include high-definition bioprinting, laser-induced photo-chemistry, development of biomaterials for additive manufacturing and bioprinting. Since 2004, Dr. Ovsianikov contributed to over 85 publications in peer-reviewed journals and 5 book chapters. He have also served as a co-editor of two books: “Multiphoton Lithography: Techniques, Materials, and Applications” (Wiley) and “3D Printing and Biofabrication” (Springer). The latter is a unique updateable book project and a part of the Springer series in biomedical engineering, published in close cooperation with the Tissue Engineering and Regenerative Medicine International Society (TERMIS):

<https://link.springer.com/referencework/10.1007%2F978-3-319-40498-1>

Statement – Application for a Board position of the International Society for Biofabrication

It is a great honor for me to be invited to apply for a board position of the International Society for Biofabrication (ISBF). I have been active in this field for over 10 years now, since the International Conference on Bioprinting and Biofabrication in Bordeaux (3B'09). Our research article “Laser printing of cells into 3D scaffolds”, published in the journal of Biofabrication in connection to this conference, was listed as the Nr1 highlight of the year 2010. Also our more recent review “Bioink properties before, during and after 3D bioprinting”, published in cooperation with scientists from Belgium and USA, enjoyed sustained listing as the most read article in the journal of Biofabrication. In this list, it is currently followed by a more recent review “A definition of bioinks and their distinction from biomaterial inks”, which I have actively contributed to. Throughout the years, I have actively engaged myself in research on biomaterials and biofabrication. My lab is currently working on the development and application of hydrogel 3D printing for realization of biomimetic cell culture matrices aimed at *in vitro* tissue models. A particular focus of our current research is establishing of laser-based high-resolution 3D printing in the domain of biofabrication. We also explore the combination of these methods with microfluidic technology in order to develop organ-on-a-chip platforms.

I am also promoting the field by giving invited talks and organizing ISBF-endorsed biofabrication sessions at international meetings. For example, I am an active member of a thematic group Biofabrication of the Tissue Engineering and Regenerative Medicine International Society (TERMIS) and co-organized biofabrication symposia at such recent meetings as TERMIS EU 2016 (Uppsala, Sweden), TERMIS World Congress 2018 (Kyoto, Japan) and TERMIS EU 2019 (Rhodes, Greece). Our living book project “3D Printing and Biofabrication” (see above) is freely available online to all TERMIS members. Among the upcoming highlights is the special session at the Annual Conference of the European Society for Biomaterials, which will take place in Dresden (Germany) in September.

Herewith, my background fits well the ISBF aims to promote advances in Biofabrication research, as well as the interaction between different disciplines, scientific organizations and communities. I am confident that my scientific enthusiasm and organizational skills would be a valuable asset for the ISBF. In case my application is successful, I will be happy to join one of the ISBF committees or assume another responsible position. By becoming the member of the ISBF board I am hoping to actively contribute to the further success of this organization and the biofabrication community as a whole.