CENTER FOR EXCITONICS PEROVSKITE SEMINAR SERIES

Nano- and single-crystals of lead halide perovskites: from bright light emission to hard radiation detection

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Maksym V. Kovalenko has been tenure-track Assistant Professor of Inorganic Chemistry at ETH Zürich (Swiss Federal Institute of Technology) since July 2011. His group is also partially hosted by Empa (Swiss Federal Laboratories for Materials Science and Technology) to support his highly interdisciplinary research program. He studied chemistry in Ukraine (1999-2004, Chernivtsi National University). His doctoral studies took place in Austria (2004-2007, Institute of Solid State Physics, Johannes Kepler University, Linz, with Prof. Wolfgang Heiss). He then moved to USA (2008-2011, Department of Chemistry, University of Chicago, with Prof. Dmitri Talapin). His present scientific focus is on the development of new synthesis methods for inorganic nanomaterials, their surface chemistry and assembly into macroscopically large solids. His ultimate, practical goal is to provide novel inorganic materials for photonics and optoelectronics, as well as for rechargeable Li-ion batteries and post-Li-electrochemistries. Recently, his group pioneered the synthesis of highly luminescent colloidal nanomaterials of cesium lead halide perovskites, which hold great potential for applications in display technologies and for lighting. With much larger forms of lead halide perovskites – inch-sized single-crystals – he recently demonstrated sensitive detection of hard radiation (hard X-rays and gamma photons). He is the recipient of an ERC Starting Grant 2012, Ruzicka Preis 2013 and Werner Prize 2016. He published over 110 articles in peer-reviewed journals, co-authored 3 book chapters, and is listed as inventor in 8 patents.

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