

SFB – Colloquium

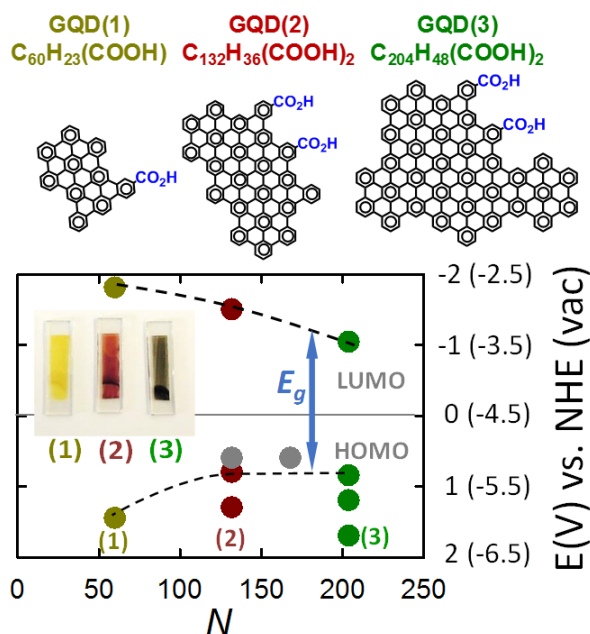
Speaker: **Dr. Milan Sykora**Laboratory for Advanced Materials,
Faculty of Natural Sciences,
Comenius University, Bratislava

Date: Tuesday, 17 May 2022, 14:15, H34

Topic: Size and Charging effects in Strongly-Confining Quantum
Dots Prepared by Bottom-up Chemical MethodsAbstract:

Laboratory for Advanced Materials (LAM) is a newly established research laboratory at the Faculty of Natural Sciences at Comenius University in Bratislava, Slovakia, supported by the European Commission under the Horizon 2020 program, the ERA Chair scheme. The introductory part of the presentation will be used to briefly introduce the laboratory and give a short overview of the laboratory research program. The rest of the talk will be dedicated to selected examples from our research work on reduced dimensionality semiconductor materials, specifically strongly confined Inorganic Nanocrystals and Graphene Quantum Dots. The topics discussed will include preparation of the materials by the bottom-up chemical methods, effect of controlled charge doping on the electronic structure and optical properties, effect of confinement on the bandgap, valence and conduction band offsets, exciton binding energies and densities of states and the Raman spectroscopy signatures.

Host: Prof. Dr. Jaroslav Fabian



Examples of GQDs prepared by stepwise “bottom-up” synthesis and the dependence of their electronic structure on size. Inset: photograph of the films with the GQDs adsorbed on glass.