

## Chemistry Seminar

The **Department of Chemistry, IIT Bhilai**, is proud to host **Dr. Robert Zaleśny**, Associate Professor, Department of Physical and Quantum Chemistry, Wrocław University of Science and Technology, Wrocław, Poland on February 11, 2021 at 14:00 hrs for a seminar on **“Tailoring Nonlinear Absorption of Fluorescent Dyes”**.

**Abstract of the talk:** Two-photon absorption (2PA) process, although predicted on a purely theoretical basis almost a century ago, has gained much attention only in last two decades. 2PA is in a limelight mainly due to its potential applications, including three-dimensional data storage, photodynamic therapy or two-photon microscopy. It may also be used as a powerful spectroscopic tool to identify symmetry-forbidden transitions or to record high-resolution spectra below the Doppler width. In particular, the applications of 2PA for bio-imaging is rapidly developing area and every year a large number of 2PA-active dyes is synthesized and studied using both experimental and theoretical methods. Our group contributed to these efforts by studies focused on 2PA process for a series of highly fluorescent dyes with fluoroborate (BF) groups. During the talk recent strategies, aiming at increasing intrinsic molecular two-photon transition strengths for a wide palette of BF-containing fluorescent dyes, will be discussed.

**About the speaker:** Dr. Robert Zaleśny joined the Faculty of Chemistry at the Wrocław University of Science and Technology in 2008 where he serves currently as an Associate Professor. He co-authored over 90 peer-reviewed publications and book chapters. His research focuses on electronic and vibrational structure theory and applications with a special emphasis on multiphoton absorption of organic molecules. His most recent research activity, in cooperation with experimental teams, is devoted to optimization of spectroscopic signatures of fluorescent dyes.