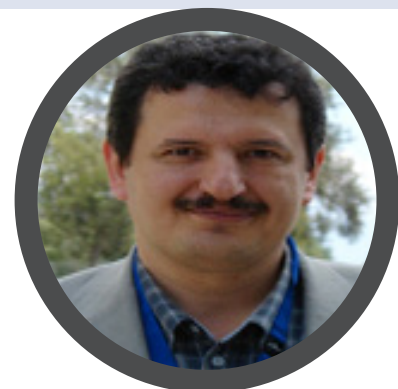


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ADVANCES IN THE DEVELOPMENT OF COMPACT LASER SOURCES FOR IMAGING, DIAGNOSTICS AND TREATMENT IN BIOMEDICINE

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In the last decades, progress in the development of compact laser sources has brought to science and industry an enormous number of new applications. Previously, such lasers were mostly utilised in the communication and other industries. However, now such laser sources are becoming adopted in biomedicine and related fields. In this talk, I will present the recent progress on the development of novel compact quantum dot based laser sources generating light across broad spectral ranges in CW and ultra-short pulse regimes. I will also review some of the most promising applications where such laser sources are being used. Particularly I focus on biophotonics areas such as multi-photon imaging, non-invasive diagnostics and photo treatment.

Biography

Edik U Rafailov received his PhD degree from the Ioffe Institute, St Petersburg. Since 1987, Rafailov has been engaged in the research and development of high-power CW and short pulse diode and solid-state lasers. He has authored and co-authored over 450 articles in refereed journals and conference proceedings, including two books (Wiley), ten invited chapters and numerous invited talks to SPIE, LEOS and CLEO. He also holds 11 UK and two US patents. He coordinated a €14.7M FP7 FAST-DOT project: development of new ultrafast lasers for Biophotonics applications and the €12.5M NEWLED project aims to develop a new generation of white LEDs. Recently, he was awarded as a coordinated the H2020 FET project Meso-Brain (€3.3M). He also leads other projects funded by EU FP7/H2020 and UK EPSRC. His current research interests include high-power CW, ultrashort-pulse lasers; generation of UV/visible/IR/MIR and THz radiation, nano-structures; nonlinear and integrated optics; and Biophotonics.

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