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Novel compact laser sources for biomedical photonics: Diagnostics and treatment

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In the last decades, progress in compact semiconductor based laser technologies has brought to science and industry an enormous number of new applications. Such laser systems which were mostly utilized in the communication and other industries are now becoming adopted in biomedicine and related fields. Here we would like to outline some of the most promising applications where compact laser diode based light sources in UV/visible, near and mid infrared wavelength ranges are being used in biophotonics, particularly focussing on CVDs, diabetes, and cancer diagnostics and photo treatment.

Biography

Edik U Rafailov received his PhD degree from the Ioffe Institute. In 2005 he established new group and in 2014 he and his Optoelectronics and Biomedical Photonics Group moved to Aston University. He has authored and co-authored over 350 articles in refereed journals and conference proceedings. He coordinated a €14.7M FP7 FAST-DOT project – development of new ultrafast lasers for Biophotonics applications. Currently, he coordinated the €11.8M NEWLED project aims to develop a new generation of white LEDs. He also leads a few others projects funded by FP7 EU and 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; Biophotonics.

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