私立大学戦略的研究基盤形成支援事業「高分子超薄膜から創成する次世代医用技術」第 30 回講演会

MNTC 特別セミナー

Dr. Alex Rozhin

Aston Universityies,
Aston Institute of Photonic Technologies,
Birmingham, UK

11/17 THU
16:00 ～18:00

@12 号館 1 階
マイクロ・ナノ
研究開発センター

Functionalized carbon-based nanomaterials as nano-ink for printable photonic applications

Carbon nanomaterials (nanotubes, nano-diamond, graphene) possess unique surface, thermal and optical properties promising for advanced applications in photonics, high-power electronics, pharmacy, etc. The present talk will focus on the development of nano-inks made of nanotubes and nano-diamond. In order to formulate a nano-ink, carbon nanomaterials were dispersed in N-methyl 2-pirrolydone (NMP) solvent by using ultra-sonication (Nanoruptor, Diagenode SA) at 20 kHz, 250 W for 1 h followed by ultra-centrifugation (Beckman Optima Max-XP, MLS-50 rotor) at 25,000 rpm for 2 h. Finally, the resulting dispersion was filtered through a 0.7 micron glass fiber filter in order to remove remaining sediment at 20 kHz, 250 W for 1 h followed by ultra-centrifugation (Beckman Optima Max-XP, MLS-50 rotor) at 25,000 rpm for 2 h. The prepared nano-ink was characterized by optical absorption and photoluminescence excitation-emission spectroscopy. The nanomaterial arrays printed using the as-prepared nano-inks show a great promise for fluorescence imaging and bio-sensing applications, as well as for generation of ultra-short pulses in lasers.

MICRO/NANO
TECHNOLOGY CENTER
TOKAI UNIVERSITY

東海大学マイクロ・ナノ研究開発センター 熊田 (ext.4790 mntc@tsc.u-tokai.ac.jp)