第249回 OPERA研究交流セミナー
第240回 ISIT有機光エレクトロニクス研究特別室セミナー
第307回 未来化学創造センターセミナー

日時：2024年10月25日(金) 15：00～
場所：ISI棟3階 セミナー室

「Proactive design and synthesis of Luminescent Materials for Smart Lighting」

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An acceleration in the global energy demand has pushed the usage of energy-saving smart devices and energy-efficient solid-state lighting (SSL). Smart white light-emitting diode (LED) technology is evolving at a fast pace (a way to solve the energy crisis), and its features continue to broaden its appeal and energy-saving impact. Proactive molecular design and engineering play a vital role in creating single-component white light emissive systems. It is still a challenge to achieve efficient white light emission with high color purity (based on the CIE diagram, an ideal white light system has x = 0.33, y = 0.33 to satisfy the NTSC standard value). In this context, we are developing new molecular materials (trivalent europium ion-based phosphors as red or single component white light emissive systems/pure organic molecules) for LEDs. The details of the design strategy and synthesis of lanthanide-based phosphors (Zero concentration/thermal quenching) and organic fluorophores (TADF/RTP) will be presented and discussed in the presentation.