

## 第10回ナノフォトニクスセミナー

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日時：5月18日（木） 13:30～15:00

場所：研究交流棟5階会議室 W525

### FLIM/FRET\_\_ a Novel Tool for Molecular Dynamics Imaging

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In this post-genome era, visualizing and quantifying protein-protein interactions is a recent trend in biomedical imaging. The ability to see the dynamics behavior of a specific protein inside the living cells and tissues became possible through the application of fluorescence (Föster) resonant energy transfer (FRET) technique. Applications of the modern photonics technology allow biomedical analysis at single molecule and nanometer scale with sub-nanosecond time resolution. The integration of fluorescence spectroscopy added a new dimension to light microscopy that enables the investigation of molecular behavior. Such need, in particular, has been successfully met by the fluorescence resonance energy transfer (FRET), formulated by Förster back in 1948 and reborn again recently due to the advances of newly developed genetically encoded fluorescent labels and sensors. Upon energy transfer, the fluorescence intensity and the lifetime of the donor reduce as its excited state population is being depleted. FRET measurements in a microscopic object can be conveniently carried out with fluorescence lifetime imaging microscopy (FLIM).

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