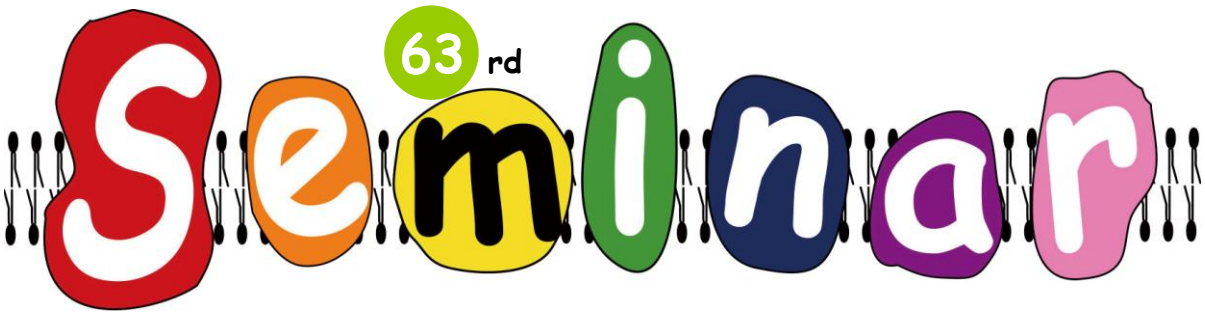

2011 6. 20（月）
10:00-11:00

講演者： **Nils G. Walter 教授**
Department of Chemistry
Single Molecule Analysis Group
University of Michigan

演　題：　Scientists Watching Action Movies:
Real-Time Single Molecule Fluorescence Imaging of Natural and Engineered Nucleic Acid Nanomachines

場　所： 京都大学 再生医科学研究所 東館５階ルーフテラス

Nature and Nanotechnology likewise employ nanoscale machines that self-assemble into structures of complex architecture and functionality. Fluorescence microscopy offers a non-invasive tool to probe and ultimately dissect and control these nano-assemblies in real-time. In particular, single molecule fluorescence resonance energy transfer (smFRET) allows one to measure distances at the 2-8 nm scale, whereas complementary super-resolution localization techniques based on Gaussian fitting of imaged point spread functions (PSFs) easily measure distances in the 10 nm and longer range. Prof. Walter will describe how he and his colleagues have used smFRET to dissect the complex conformational dynamics of a pre-mRNA as it is processed by the cellular spliceosome machinery on the way towards becoming a messenger RNA (mRNA) ready for gene expression; and how they have utilized super-resolution fluorescence microscopy to monitor the walk of molecular spider nanorobots on tracks defined by programmable DNA scaffolds called origami.

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