



54th RAP Seminar

The 54th Seminar on RIKEN Center for Advanced Photonics

Language: Japanese

Date: **June 15(Fri) 16:00 - 17:00, 2018**

Location: **W319, 3F, Cooperation Center, Wako Campus, RIKEN**

(理研 和光キャンパス 研究交流棟 3階会議室 W319)

Title: **Optical nonlinear control using high-Q microresonators**

高Q値微小光共振器を用いた非線形制御

Speaker: **Prof. Takasumi TANABE**

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High-Q microcavity can confine light in a tiny space. It enables strong interaction between light and material, and this allows us to use optical nonlinearities at small driving power.

I will discuss on optical frequency comb generation using a whispering-gallery mode (WGM) microcavity, which is achieved by cascaded four-wave mixing in a microresonator. WGM microcavities can also be used to demonstrate low-threshold Brillouin lasing. We used a coupled system in order to resonantly excite the pump and the Brillouin light.

If time allows, I would like to discuss on a different type of nano-cavity, which is a high-Q photonic crystal nanocavity. We recently demonstrated a photo-lithographic fabrication of a photonic crystal nanocavity with a Q of $>10^5$ having SiO₂ clad structure. It may open future mass production of high-Q photonic crystal nanocavities.