

Colloquium on Green Nanomaterials

協力： 半導体応用研究センター

日 時： 4月15日（火） 15:00～16:00

場 所： 電子システム系院生研修室（ウェストウィング 4 階）

講 師： **Prof. Annamaria Cucinotta**
University of Parma

題 目： **Yellow Fiber Laser System for The Treatment of oCular
disEases**



概 要： Nowadays, there is a great demand for coherent light sources emitting in the yellow spectral range due to their numerous applications. Direct generation of yellow emission can be attained using Dy³⁺-fiber lasers. The fiber laser technology offers the advantages of good beam quality, small footprint, and distributed thermal management. Current research focuses on enhancing their overall optical-to-optical efficiency and output beam quality. In the Yellow Flicker-project, a model of the Dy-doped fiber laser has been developed to maximize his efficiency. Additionally, a thermal model of the eye under laser irradiation has been developed to ensure safe and effective treatment protocols. In fact, the yellow laser is widely used to induce a biologic response in the retina without causing thermal damage to the target tissues to treat eye diseases like macular edema.

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Colloquium on Green Nanomaterials

Cooperated by Ritsumeikan Semiconductor Application research center

Date: April 15 (Tue) 15:00~16:00

Place: Electronic Systems Graduate Student Training Room
@ 4th floor in West wing, Biwako-Kusatsu Campus

Speaker: Prof. Annamaria Cucinotta
University of Parma

Title: Yellow Fiber Laser System for The Treatment of oCular
disEases



Abstract: Nowadays, there is a great demand for coherent light sources emitting in the yellow spectral range due to their numerous applications. Direct generation of yellow emission can be attained using Dy³⁺-fiber lasers. The fiber laser technology offers the advantages of good beam quality, small footprint, and distributed thermal management. Current research focuses on enhancing their overall optical-to-optical efficiency and output beam quality. In the Yellow Flicker-project, a model of the Dy-doped fiber laser has been developed to maximize his efficiency. Additionally, a thermal model of the eye under laser irradiation has been developed to ensure safe and effective treatment protocols. In fact, the yellow laser is widely used to induce a biologic response in the retina without causing thermal damage to the target tissues to treat eye diseases like macular edema.

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