

エクストリームフォトンクスセミナー *Extreme Photonics Seminar*

No.13

Language: **English**

Date: Dec. 3rd(Fri), 2010, 15:00 ~ 16:00

Location: Cooperation Center, 5F Meeting Room, W524
(研究交流棟5階会議室 W524)

Title: **Functionalizing Glass Ceramics
by Laser Radiation**

Speaker: **Dr. Henry Helvajian**
(The Aerospace Corporation, USA)

The glass ceramics (GCs) represent a material class that has found applications in many industries running the gamut from high to low technology. Some of this success is partly due partly that the material can be “tailored” for the application by altering the constituent ingredients and the concentrations. By nature, the GCs are a composite system comprising of crystalline matter embedded in a glass/amorphous host. For a many element GC system and depending on the phase diagram, various kinds of crystals could be grown and select species could be made to precipitate in the host. The precipitate and/or crystalline matter type and concentration have an effect on the functional properties of the material.

Laser radiation can be used to initiate processes that help to functionalize the material. For a number of years, we have investigated the affect of controlled pulsed laser radiation on a class of photosensitive GCs. We have presented data on locally transforming the material to a more chemically soluble phase and to changing its optical properties. In this presentation we explore the use of controlled laser irradiation to initiate a photophysical process that leads to controllable changes in the ultrasonic properties of the material.