【Abstract of 2008 Grant – in – Aid for Scientific Research on Innovative Areas
(Research in a proposed research area)】

Title of project	Optical Science of Dynamically Correlated Electrons (DYCE)
Head Investigator Name	Makoto Gonokami
Abstract of Research Project **Term of Project: 2008-2012**	Science and technology based on novel optical effects is a field of research with rich possibilities. To fully take advantage of this potential, the interrelations between light and matter must be reconsidered from a different viewpoint. The key lies in the control of the interactions among electrons and quantum coherence in excited states of matter, called "dynamically correlated electron (DYCE)" systems. In this innovative research area, the buildup of a closer connection between, photon science, materials science, laser technology, device engineering and quantum many-body theories is sought. We aim to explore optical effects resulting from DYCE systems to discover new scientific principles and applications. This new academic area will be created by merging the fields of optical and materials sciences.