

# GCOE 国際特別講演会

日時： 平成 22 年 6 月 2 日 (水)

午後 2 : 40 ~ 午後 3 : 40

会場： 信州大学繊維学部講義棟 27 番講義室 (Room 27, Lecture Building.)

講師： **Dr. Sanjay Kumar Varshney,**  
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**演題： Discotic liquid crystals as functional materials**

講師の先生は、最近インドのシリコンバレーと呼ばれ、IT 産業で有名なインドのバンガロール市から来られます。そこには、ディスコティック液晶を発見したチャンドラゼカル教授が開設した液晶研究所が、あります。現在、ここはディスコティック液晶研究の世界の中心の一つです。先生はこの研究所に所属しておられます。今回の講演では、従来にない機能性ディスコティック液晶の話題を、講演していただきます。多数のご来聴を歓迎いたします。

(世話人) 大学院総合工学系研究科

スマート材料工学講座

教授 太田和親 (内線 5492)

===== (以下講演要旨) =====

To study the effect of functional group on core, dibenzochrysenes (DBC), a new family of DLCs, are achieved by a conventional method which is developed having several chiral and achiral peripheral aliphatic chains. These compounds exhibit the variety of columnar mesophase over a wide thermal range. We found that such racemic DBC molecules with axial chirality macroscopically segregate into chiral domains. Although the molecule seems to be flat, it is unambiguously demonstrated that the DBC molecules are twisted based on molecular simulation and the VCD results.

To study the effect of terminal linking group, monomers are connected to each other by an alkyl chain, via an ester linkage on one side and an ether linkage on the other side. Indeed, functional discotic dimmers and trimmers having triphenylene as donor and anthraquinone as electron acceptor moieties, with different functional group, are designed and synthesized. They exhibit variety of nematic and columnar mesophases and these mesophases are stable at room-temperature. However, it is demonstrated that the functional group on the core and terminal linking group has maximum influence on molecular self-assembly. It is also proved that DLCs with usual peripheral chains in periphery exhibit the nematic mesophase at room-temperature.