

コヒーレント光科学セミナーのご案内

ハイデラバード大学の Nirmal Viswanathan 先生が12月4日から11日まで本学を訪問されます。

ハイデラバード大学は10年以上にわたる本学の協定校であり、同大学の卒業生は教員、ポスドク、あるいは大学院生として、本学で活躍してきました。

ついては下記の要領でセミナーを開催いたします。

物質と光のカイラリティの相互作用についてお話し頂きます。

研究室の研究者、学生の皆様もお誘い合わせのうえ、奮ってご参加下さい。

Coherent Optical Science Seminar on Information Optics

Date: Friday, 6 December 2019

Time: 16:20-17:20

Place: Room #803, East 6 Building, UEC

Speaker: Nirmal Viswanathan, University of Hyderabad

Title: Probing Chiral Matter with Chiral Light – Novel Approaches

Abstract:

Broadly, most natural systems exhibit chirality, an inherent sense of left- or right- handedness with examples ranging from spiral galaxies and hurricanes to seashells, bacteria, amino acids, and neutrino. For more than a century, molecular chirality has routinely been probed by measuring the plane of polarization rotation angle of linearly-polarized light passing through the medium, as a manifestation of differential refraction between right- and left- circular polarized light. For circularly polarized paraxial beam of light, wherein the electric-field oscillation follows helical path around the propagation direction, this attribute is related to the spin angular momentum (SAM) of light. A more recent addition to the degree-of-freedom of a light beam is the orbital angular momentum (OAM), wherein the phase front and hence the Poynting vector follows helical path. However, unlike circularly polarized light with SAM, a paraxial beam of 'twisted' light with OAM does not couple with chiral matter, in the usual dipole-interaction sense. This raises the question of how to engage the OAM of light with chiral matter, to increase the sensitivity and accuracy of optical rotation (OR) and circular dichroism (CD) measurements leading to fundamental

understanding of light-matter interactions, a topic of resurgent interest. We use spin-orbit coupled paraxial light beams to achieve this task and show proof-of-concept experimental demonstration in systems with natural and induced chirality. The sensitivity of the measurement techniques is better by at least three-orders of magnitude than the existing methods.

There will be a party afterwards (18:00-) with soft drinks and refreshments for 1,000 yen (staff) and 500 yen (students).

If possible please indicate attendance by Wed 4 Dec. with the following form.

***** Attendance form *****

I will attend the party on 7 Dec.

Name:

Staff / Student (delete whichever does not apply 該当しないものを消して下さい)

Contact: Yoko Miyamoto

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