The 4th JUACEP Seminar

第４回 名古屋大学日米協働教育プログラムセミナー

$[RSiO_{1.5}]_{8/10/12}$ 3-D Nanobuilding blocks (NBs) for structural, photonic and electronic applications by F^- catalyzed rearrangements

Lecturer: **Professor Richard M. Laine**

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Venue **ES Hall, ES Building**

The title compounds offer very high symmetry, with diameters of 1-1.5 nm and with 8, 10 or 12 vertices arrayed in 3-D. The R groups can be varied infinitely depending on desired functionality, targeted assembly mechanism and target global properties. Thus structures ranging from relatively linear polymers to 3-D networks are accessible. These materials are typically very soluble and thus easy to modify, purify and characterize. They offer very high thermal stabilities compared to all carbon analogs because of the intrinsic heat capacity of the silica cores.

In addition, when R is conjugated the potential exists for these materials to exhibit 3-D conjugation in the excited state. It is also possible to prepared 3-D microporous materials that are also luminescent. This talk will present several general examples of the synthesis and properties of these materials comparing the photophysics of the T_8 vs T_{10} and T_{12} compounds which seem to have different band gaps.

略歴: 1969年カリフォルニア州立大学化学部卒。1973年南カリフォルニア大学博士号（化学）取得。デラウェア大、UCサンタバーバラ、スタンフォード国際研究所研究員を経て1987年ワシントンテクノロジーセンター研究教授、1990年からミシガン大学物質科学工学部教官。1999年同大教授。Mayaterials 創設者兼CEO、高分子科学工学センター統括者、EXIMOハードコーティング社共同創設者。

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