第277回触媒化学研究センター談話会

Title:

New Strategies for Improving Sensitivity in Solid-State NMR;
Applications to Catalytic Nanoscale Materials,
Bio molecules and Fossil Fuels

Speaker: Prof. Marek Pruski

Senior Scientist, Ames Laboratory, US Department of Energy
Professor, Department of Chemistry, Iowa State University

Date & Time: 13:30-15:00, Mon, July 26, 2010

Place：Catalysis Research Center　4F Seminar　Room C (04-213)

＊本講演は英語で行なわれます。This lecture will be given in English.

Abstract：Remarkable gains in sensitivity and resolution have been achieved in solid-state NMR spectroscopy by combining the use of high magnetic field, fast magic angle spinning and new multiple diofrequency pulse sequences. Several novel experiments will be presented along with their applications to the studies of catalytic materials, biomolecules and fossil fuels. Examples of the studied materials include mesoporous silica nanoparticles functionalized with various types of organic groups, where solid-state NMR allows the definitive characterization. In particular, it can be used to detail the structure of mesoporous substrates, study the structure and absolute/relative concentration of various moieties inside the mesopores, determine their spatial distribution, orientation with respect to the surface and dynamic behavior, and monitor the catalysts' stability under the reaction conditions. The new capabilities are also demonstrated on fully rigid, naturally abundant solids, including tripeptide (f-MLF-OH) and a series of coals.

本講演は『化学研究先端講義／総合化学特別研究第二』の対象となっております。

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