第43回・理学部化学科コロキウムの御案内

National Taiwan UniversityのPeng先生をお迎えして、第43回化学科コロキウムを開催いたします。Peng先生は、錯体合成と有機合成を駆使することにより、興味深い性質を有した直線型金属錯体の御研究に取り組まれておられます。

皆様の、多数のご来場をお待ちしております。

ミニ国際シンポジウム

日時：2004年5月26日（水曜日）15：00～
場所：国際交流会館・中会議室

Part-I

Daisuke KAWAKAMI, B.S.

Master Course Student, YAMASHITA Group, TMU

"Exploration of a Delocalized System of 1-D Halogen-Bridged Platinum Complexes: Direct Observations of Pt(III) States by STM."

Aiko KATO, M.S.

Doctoral Candidates, YAMASHITA Group, TMU

"Synthesis and Single Molecular Characterization of A Square Shaped Porphyrin Dodecamer."

Masamichi UMEMIYA, M.S.

Doctoral Candidates,YAMASHITA Group, TMU

"A New Organic Superconductor Based on Unsymmetrical Donor DMET."

Part-II

Shie-Ming Peng, Professor of Chemistry

National Taiwan University, Taipei, Taiwan

"From Metal String Complexes To Metal Wires."

連絡先：理学部・化学科・山下正廣（内線3570）

From Metal String Complexes To Metal Wires

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Abstract. Owing to their fascinating bonding nature, the metal–metal (M-M) multiple bonds in dinuclear metal complexes have been an interesting and vital research topic. During the past decade, our seminal and systematic approaches on the all-*syn* oligo-(α-pyridyl)amido ligands coordinated metal ions have successfully opened up a new chapter, extending this territory from dinuclear to linear oligonuclear metal complexes. Their unique features in structures and bonding characterization have been thoroughly investigated, which, according to the M–M bonding strength, can be classified into two categories, namely the oligonickel(II) complexes lacking an M–M bond and the oligochromium(II) complexes with a strong M–M bonding formation. Depending on the specificity and number of metal ions, structures and magnetic behaviors of the corresponding metal complexes are systematically analyzed. Their potential application as a molecular metal wire is conveyed on the basis of the band structures calculated from hypothetical one-dimensional metal strings. Moreover, self-assembled monolayers of *n*-alkanethiols are employed as a two-dimensional matrix to isolate the metal string complexes, of which the scanning tunneling microscopy (STM) image exhibits remarkable protrusion characteristics. For tricobalt and trichromium complexes, the topographic STM images reveal that the protruding features are, respectively, 0.3 nm and 0.6 nm higher than that of the trinickel complexes. The trend of increasing conductivity correlates well with their associated bond orders, and is also in consistence with qualitative EHMO approaches.

Keyword: Metal String Complex, Molecular Metalwire, STM Spectroscopy