Hybrid Inorganic/Organic Systems for Opto-Electronics

Collaborative Research Centre 951

Colloquium Announcement

of the Collaborative Research Centre 951
"Hybrid Inorganic/Organic Systems for Opto-Electronics"

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Porous Self-Assembled Monolayers at Solution/Graphite Interfaces: From On-Surface Chirality to Molecular Lithography

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Porous Self-Assembled Monolayers at Solution/Graphite Interfaces: From On-Surface Chirality to Molecular Lithography

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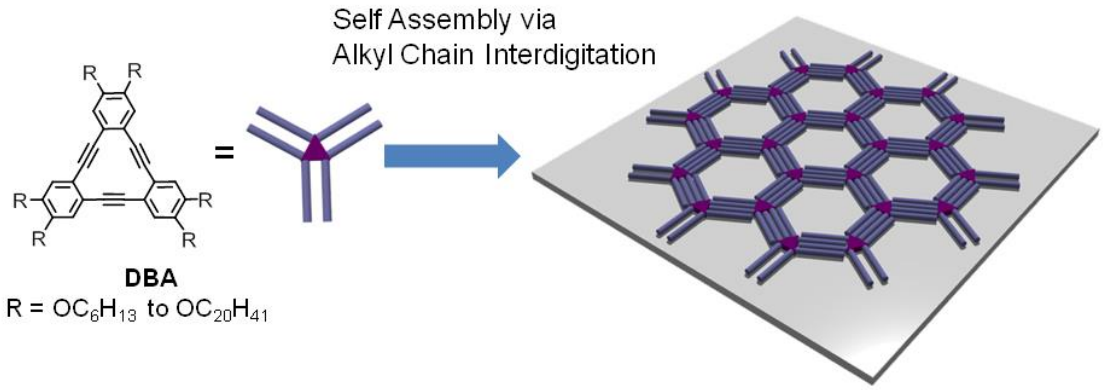
Porous networks formed by molecular self-assembly have attracted a great deal of interest in connection with not only potential applications in tailor-made catalysis and molecular electronics but also fundamental principle of crystallization. For more than a decade we have studied on-surface self-assembly at the liquid/solid interface of a series of triangle building blocks, alkoxy-substituted dehydro[12]annulenes (DBAs), which exhibit remarkable adaptability to many instances thank to their versatility in synthetic modifications. These include (i) pore size control by changing the alkoxy chain length,[1] (ii) parity effect by using even or odd number alkoxy chains,[2] (iii) generation and reversion of supramolecular chirality on surfaces by introducing stereocenters into the alkoxy chains,[3] (iv) chemical modification of the pore interior for selective co-adsorption of guest molecules by introducing functional groups at the alkoxy chain terminals.[4] Our recent efforts are focused on epitaxial multilayer formation and the use of the non-covalent molecular networks as masks for periodical surface modification. After general introduction, the lecture will focus on the on-surface chirality issue followed by *enantioselective* multilayer formation and periodical surface modification using the networks as removable masks, i.e. molecular lithography.



References:

1. Tahara, K.; Furukawa, S.; Uji-i, H.; Uchino, T.; Ichikawa, T.; Zhang, J.; Mamdouh, W.; Sonoda, M.; De Schryver, F. C.; De Feyter, S.; Tobe, Y. *J. Am. Chem. Soc.* **2006**, *128*, 16613.
2. Ghijsens, E.; Ivasenko, O.; Tahara, K.; Yamaga, H.; Itano, S.; Balandina, T.; Tobe, Y.; De Feyter, S. *ACS Nano* **2013**, *7*, 8031.
3. Tahara, K.; Yamaga, H.; Ghijsens, E.; Inukai, K.; Adisoejoso, J.; Blunt, M. O.; De Feyter, S.; Tobe, Y. *Nat. Chem*. **2011**, *3*, 714; Fang, Y.; Ghijsens, E.; Ivasenko, O.; Cao, H.; Noguchi, A.; Mali, K. S.; Tahara, K.; Tobe, Y.; De Feyter, S. *Nat. Chem.* **2016**, *8*, 711.
4. Tahara, K.; Inukai, K.; Adisoejoso, J.; Yamaga, H.; Balandina, T.; Blunt, M. O.; De Feyter, S.; Tobe, Y. *Angew. Chem. Int. Ed.* **2013**, *52*, 8373.