EuroSciCon

8th Edition of International Conference on

Chemistry Education and Research

August 27-28, 2018
Zurich, Switzerland

Linghai Xie, J Org Inorg Chem 2018, Volume 4
DOI: 10.21767/2472-1123-C5-013

ORGANIC NANOSYNTHESIS OF MACROSCOPIC WINDOW GRIDS AT MOLECULAR SCALE

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In the past, our researches focus on a multiscale/ hierarchical chemistry of organic devices suffering from a ten-year journey in the molecular world starting from the synthesis of fluorene via supramolecular approaches to intermolecular motifs, nanoscale aggregate, mesoscale orientation film as well as multilayered heterojunction in order to solve the technology bottleneck in organic/ plastic electronics. Although we developed the organic wide-bandgap semiconductors that cannot be comparable with inorganic performance, a whole node-network and systematic picture of the diverse and multiscale chemical world has been impressed that results in the belief of self-similar epistemology where microscopically molecular worlds could not be mysterious that just resemble human scale society ever since. Our target is to clone all the MEIC aspects of macroscopic worlds at molecular scale that is the effective pathway to activate molecular intelligence and consciousness. Herein, we start from the human-scale window grids as a typical static paradigm that you can see everywhere and that are around you in daily life. Chinese ancient window grids are especially aesthetic besides usefulness for life ever that also record and impress the traditional culture and philosophy of Fang Yuan. They inspired us differentiating from the well-known macrocycles and exploring the unprecedented nano-grid[n]arenes that include a huge family of various unit nanogrids, digrids, multigrids and polygrids via a bottom-up molecular installing nanotechnology (MINT). This kind of hierarchical nano-gridarenes and their nanopolymers will be a diverse platform of covalently multiscale and cross-scale meta-molecules that would be advanced nanomaterials with multiscale precision to face the challenge of plastic electronics and organo-robots in the background of the era of consciousness (EOC) from carbon to robot.

Biography

Linghai Xie has completed his PhD in Macromolecular Chemistry and Physics by Fudan University in 2006 and Senior Visiting Scholar studies at Nanyang Technological University (NTU) during 2012-2013. He won the NSFC Award for Excellent Young Scholar in 2013. He has worked as Professor of Organic Hierarchical Chemistry at Nanjing University of Posts & Telecommunications. He serves as a Director of the Center for Molecular Systems & Organic Devices at the Institute of Advanced Materials. His research contributions include one-pot protocol to spirofluorenes (especially spirofluorenexanthene, SFX), Synergistically Molecular Attractor-Repulsor Theory (SMART), nano-grid[n]arenes and molecular multimedia. He has published more than 180 papers in reputed journals and has been cited by more than 2900.

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