第 1774 回　雑誌会

Zasshikai No. 1774 since 1890

東京大学理学部化学教室

2019/2/28 (Thu) 15 : 00～16 : 15

化学本館 3 階講義室

3F Lecture Room, Chemistry Main Bldg.

Structure-Specified Synthesis of Single-Walled Carbon Nanotubes

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Abstract: Single-walled carbon nanotubes (SWNTs) present outstanding properties essentially depending on their helical structures, which are described with the chiral index of (n, m). The chirality-specific synthesis of SWNTs is of great importance. We developed a new family of catalyst, tungsten-based intermetallic nanocrystals, to grow SWNTs with specified chiral structures. Such intermetallic nanocrystals present unique structure and atomic arrangements, which are distinctly different from the normal alloy nanoparticles or simple metal nanocrystals, therefore can act as the template to grow SWNTs with designed (n, m) structures. By further optimization of kinetic growth conditions, SWNTs with high chirality purity were obtained.

Biography: Yan Li graduated from Shandong University with a Bachelor's degree in chemistry in 1987 then received her Ph.D in inorganic chemistry from Peking University in 1993. After two years' postdoctoral research, she joined the faculty of Chemistry, Peking University in 1995. From 1999 to 2001, she was a visiting Associate Professor at Duke University. She has been the full professor of chemistry at Peking University since 2002. She is appointed as distingguished visiting professor in School of Engineering, The University of Tokyo since 2016. She is a fellow of Royal Society of Chemistry. Currently, she is also serving as the associated editor for ACS Nano and on the advisory boards or editorial board of Chemiccal Society Review, Materials Horizons, and Nano Research. Her research is focused on carbon nanomaterials, especially the preparation, modification, characterization and application of carbon nanotubes. She has got many hornors and awards in both research and teaching including National Outstanding Youth Fund of China (2011), Chang Jiang Scholar (Chinese Ministry of Education, 2013), the first prize in CAIA (2015), National Outstanding Scientist (China Association for Science and Technology, 2016), the first prize in Natural Science (Chinese Ministry of Education, 2017), Chinese Chemical Society-Evonik Chemical Innovation Award Distinguished Scientist (2018).

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