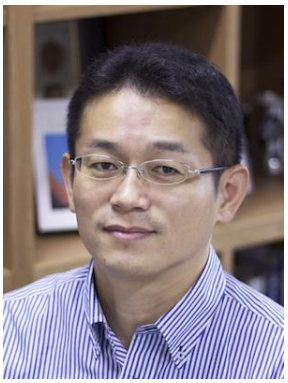
2019 年 9 年 13 日学术报告



报告人：Shigehiro Yamaguchi, Director, Prof., Dr. Eng.

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Furo, Chikusa, Nagoya 464-8602, JAPAN

报告时间：2019 年 9 月 13 日（星期五），上午：10: 00 – 11: 30

报告地点：上海市四平路 1239 号同济大学化学馆 120 室

报告人简介：

Selected Professional Appointments:

1997 Dr. Eng., Kyoto University (supervisor: Prof. K. Tamao)
1993-2002 Assistant Professor, Institute for Chemical Research, Kyoto University
2000-2001 Visiting Scholar, MIT, USA (Prof. T. M. Swager)
2001-2004 PRESTO, JST, Researcher
2003-2005 Associate Professor, Nagoya University
2005- Professor, Nagoya University
2012- PI, Institute of Transformative Bio-Molecules (WPI-ITbM), Nagoya University
2014- Vice-Director; WPI-ITbM, Nagoya University
2017- Director; Research Center for Materials Science, Nagoya University

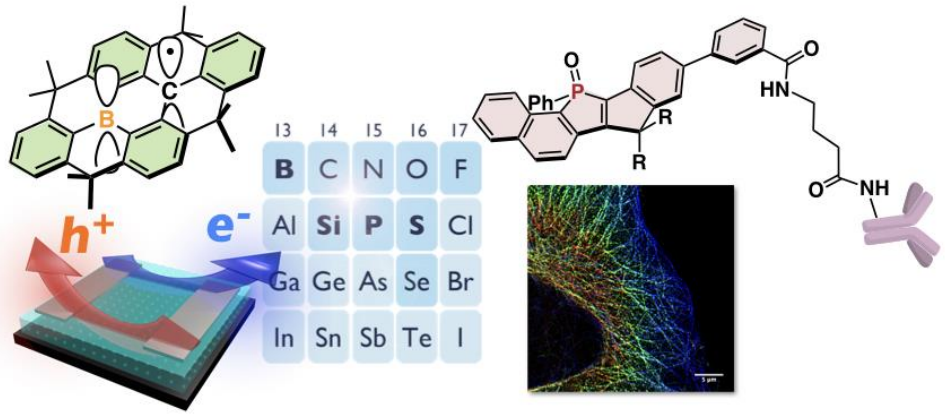
Selected Award:

1999 Young Scientist Award of the Silicon Chemical Society of Japan
2002 The Chemical Society of Japan Award for Distinguished Young Chemists
2005 Young Scientist Award from the Minister of Education, Culture, Sports, Science and Technology
2007 Tokyo Techno Forum Gold Medal Award
2008 Nozoe Young Scientist Award
2012 JSPS Award
2015 Mukaiyama Award
2016 The Chemical Society of Japan Award for Creative Work
2017 Merck-Karl Pfister Visiting Professorship (MIT lectureship award)

报告题目：Main-Group π-Materials: Design and Application to Bioimaging

Abstract: Incorporation of main group elements into π-conjugated skeletons is a powerful strategy to develop new optoelectronic organic materials with unusual properties. Representative design principles are to make use of an orbital interaction between a π-skeleton and a main-group element moiety. Conformational constraint often plays a crucial role to gain an optimal orbital interaction. In addition, this is also important to gain high chemical and/or photo-stability.[1] Based on this strategy, we have so far synthesized various types of functional π-electron materials. In this lecture, we would like to report recent progress in the development of some new main-group element-containing π-electron materials. In particular, we have recently succeeded in the synthesis of a boron-stabilized

triphenylmethyl radical, which shows ambipolar charge carrier transport properties.[2] We have also developed new P=O-containing ladder-type dyes, which can show exceptionally high photostability, and thereby can be employed as promising molecules for super-resolution STED imaging.[3]



[1] M. Hirai, N. Tanaka, M. Sakai, S. Yamaguchi, *Chem. Rev.*, **119**, *14*, 8291 (2019).

[2] (a) T. Kushida, S. Shirai, N. Ando, T. Okamoto, H. Ishii, H. Matsui, M. Yamagishi, T. Uemura, J. Tsurumi, S. Watanabe, J. Takeya, S. Yamaguchi, *J. Am. Chem. Soc.*, **139**, 14336 (2017). (b) N. Ando, T. Kushida, S. Yamaguchi, *Chem. Commun.*, **54**, 5213 (2018). (c) N. Ando, H. Soutome, S. Yamaguchi, *Chem. Sci.*, **10**, 7816 (2019).

[3] (a) C. Wang, A. Fukazawa, M. Taki, Y. Sato, T. Higashiyama, S. Yamaguchi, *Angew. Chem. Int. Ed.*, **54**, 15213 (2015). (b) C. Wang, M. Taki, Y. Sato, A. Fukazawa, T. Higashiyama, S. Yamaguchi, *J. Am. Chem. Soc.*, **139**, 10374 (2017). (c) M. Grzybowski, M. Taki, K. Senda, Y. Sato, T. Ariyoshi, Y. Okada, R. Kawakami, T. Imamura, S. Yamaguchi, *Angew. Chem. Int. Ed.*, **57**, 10137 (2018). (d) C. Wang, M. Taki, Y. Sato, Y. Tamura, H. Yaginuma, Y. Okada, S.Yamaguchi, *Proc. Natl. Acad. Sci. USA*, **116**, 15817 (2019).