

**Dr. Yoshihiro Matano**  
Department of Molecular Engineering  
Graduate School of Engineering  
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## CURRICULUM VITAE (Short)

14/12/2011

### Education:

- B.Sc. Department of Chemistry, Faculty of Science, Kyoto University, 1987  
M.Sc. Department of Chemistry, Graduate School of Science, Kyoto University, 1989  
Ph.D. Department of Chemistry, Graduate School of Science, Kyoto University, 1994  
“Synthesis, Structure and Reactions of Bismuthonium Compounds”  
(Supervisor: Prof. Hitomi Suzuki)

### Professional Experience:

- 11/1990–4/2002 Assistant Professor at Graduate School of Science, Kyoto University  
9/1996–8/1997 Postdoctoral Fellow at Department of Chemistry, University of Washington  
(Mentor: Prof. James Mayer)  
4/2002–present Associate Professor at Graduate School of Engineering, Kyoto University

### Awards:

- 2000 Incentive Award in Synthetic Organic Chemistry, Japan  
2001 Toray Award in Synthetic Organic Chemistry, Japan

### Recent Research Interests:

- 1) Organic Chemistry of Phosphorus and Sulfur: *understanding of fundamental structure–property relationship of  $\pi$ -conjugated compounds of phosphorus and sulfur*
- 2) Porphyrin Chemistry: *creation of novel porphyrin-based  $\pi$ -systems modified by nitrogen, phosphorus, and sulfur*
- 3) Materials Chemistry: *design and synthesis of novel semiconducting organophosphorus materials for use in photovoltaic cells*
- 4) Organometallic Chemistry: *creation of hemilabile hybrid ligands for use in transition metal-catalyzed reactions and ion sensors*

## Number of Publications:

140 Original Papers (1987–2011); 22 Reviews and Books (1997–2011)

## Selected Publications:

- 1) A Convenient Method for the Synthesis of 2,5-Difunctionalized Phospholes Bearing Ester Groups, Y. Matano, T. Miyajima, T. Nakabuchi, Y. Matsutani, and H. Imahori, *J. Org. Chem.* **2006**, *71*, 5792–5795.
- 2) Phosphorus-Containing Hybrid Calixphyrins: Promising Mixed-Donor Ligands for Visible and Efficient Palladium Catalysts, Y. Matano, T. Miyajima, T. Nakabuchi, H. Imahori, N. Ochi, and S. Sakaki, *J. Am. Chem. Soc.* **2006**, *128*, 11760–11761.
- 3) Synthesis, Structures, and Properties of *Meso*-Phosphorylporphyrins. Self-assembly through P–oxo-to-Zinc Coordination, Y. Matano, K. Matsumoto, Y. Terasaka, H. Hotta, Y. Araki, O. Ito, M. Shiro, T. Sasamori, N. Tokitoh, and H. Imahori, *Chem. Eur. J.* **2007**, *13*, 891–901.
- 4) Syntheses, Structures, and Coordination Chemistry of Phosphole-Containing Hybrid Calixphyrins: Promising Macrocyclic P,N<sub>2</sub>X-Mixed Donor Ligands for Designing Reactive Transition Metal Complexes, Y. Matano, T. Miyajima, N. Ochi, T. Nakabuchi, M. Shiro, Y. Nakao, S. Sakaki, and H. Imahori, *J. Am. Chem. Soc.* **2008**, *130*, 990–1002; *Corrections*: **2009**, *131*, 14123.
- 5) Regioselective  $\beta$ -Metalation of *meso*-Phosphanylporphyrins. Structure and Optical Properties of Porphyrin Dimers Linked by Peripherally Fused Phosphametallacycles, Y. Matano, K. Matsumoto, Y. Nakao, H. Uno, S. Sakaki, and H. Imahori, *J. Am. Chem. Soc.* **2008**, *130*, 4588–4589.
- 6) Comparative Study on the Structural, Optical, and Electrochemical Properties of Bithiophene-Fused Benzo[*c*]phospholes, Y. Matano, T. Miyajima, T. Fukushima, H. Kaji, Y. Kimura, and H. Imahori, *Chem. Eur. J.* **2008**, *14*, 8102–8115.
- 7) Redox-Coupled Complexation of 23-Phospha-21-thiaporphyrin with Group 10 Metals: A Convenient Access to Stable Core-Modified Isophlorin Metal Complexes, Y. Matano, T. Nakabuchi, S. Fujishige, H. Nakano, and H. Imahori, *J. Am. Chem. Soc.* **2008**, *130*, 16446–16447.
- 8) Phosphole-Containing Calixpyrroles, Calixphyrins, and Porphyrins: Synthesis and Coordination Chemistry, Y. Matano and H. Imahori, *Acc. Chem. Res.* **2009**, *42*, 1193–1204.
- 9) A Convenient Method for the Synthesis of  $\alpha$ -Ethyneylphospholes and Modulation of Their  $\pi$ -Conjugated Systems, Y. Matano, M. Nakashima, and H. Imahori, *Angew. Chem. Int. Ed.* **2009**, *48*, 4002–4005.
- 10) Synthesis, Structures, and Aromaticity of Phosphole-Containing Porphyrins and their Metal Complexes, Yoshihiro Matano, Takashi Nakabuchi, and Hiroshi Imahori, *Pure Appl. Chem.* **2010**, *82*, 583–593.
- 11) Synthesis, Structures, Optical and Electrochemical Properties, and Complexation of 2,5-Bis(pyrrol-2-yl)phospholes, Y. Matano, M. Fujita, A. Saito, and H. Imahori, *C. R. Chimie* **2010**, *13*, 1035–1047.
- 12) Synthesis of  $\alpha,\alpha'$ -Linked Oligophospholes and Polyphospholes by Using Pd–CuI-Promoted Stille-Type Coupling, A. Saito, Y. Matano, and H. Imahori, *Org. Lett.* **2010**, *12*, 2675–2677.
- 13) Fusion of Phosphole and 1,1'-Biacenaphthene: Phosphorus(V)-Containing Extended  $\pi$ -Systems with High Electron Affinity and Electron Mobility, Y. Matano, A. Saito, T. Fukushima, Y. Tokudome, F. Suzuki, D. Sakamaki, H. Kaji, A. Ito, K. Tanaka, and H. Imahori, *Angew. Chem. Int. Ed.* **2011**, *50*, 8016–8020.
- 14) Effects of Carbon–Metal–Carbon Linkages on the Optical, Photophysical, and Electrochemical Properties of Phosphametallacycle-Linked Coplanar Porphyrin Dimers, Y. Matano, K. Matsumoto, H. Hayashi, Y. Nakao, T. Kumpulainen, V. Chukharev, N. V. Tkachenko, H. Lemmetyinen, S. Shimizu, N. Kobayashi, D. Sakamaki, A. Ito, K. Tanaka, and H. Imahori, *J. Am. Chem. Soc.* in press.