



SEBASTIAN NYBIN REMELLO, Ph.D.

Assistant Professor

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RESEARCH INTEREST

Artificial Photosynthesis, Metal Complexes, MOFs, Electrocatalysis, Photocatalysis

RESEARCH EXPERIENCE

- **Assistant Professor**

31/07/2017 to Present

Department of Applied Chemistry, CUSAT, Kerala, India

- **Follow Up Research Fellow**

11/05/2018 to 27/06/2018

Department of Applied Chemistry, Tokyo Metropolitan University, Tokyo

- **Post-Doctoral Research Fellow**

01/10/2015 to 30/07/2017

Centre for Artificial Photosynthesis, Tokyo Metropolitan University, Tokyo.

ACADEMICS

- **Doctoral Degree - PhD. (Applied Chemistry)**

2012-2015

Graduate School of Urban Environmental Science, Department of Applied Chemistry, Tokyo Metropolitan University, Tokyo

PhD Thesis Title: “Artificial Photosynthesis Catalyzed by Silicon Porphyrins through two electron activation of water” **Guide: Prof. Haruo Inoue.**

- **Postgraduate Degree- M.Sc. Chemistry (82.9%)**

2009-2011

Sacred Heart College, Mahatma Gandhi University, Kerala, India

Project Title: “Positive Ion Induced ESI Mass-Spectrometric study of Natural Curcumin”; Guide: Dr. M. George.

- **Undergraduate Degree- B.Sc. Chemistry (98.7%)-First Rank**

2006-2009;

Sacred Heart College, Mahatma Gandhi University, Kerala, India

PERSONAL DETAILS

| | |
|----------------|---|
| Age & DOB | -31, 28 October 1988 |
| Marital Status | -Married (Spouse Name – Dainey Davis, (26 Yrs.) M.Sc. Genetics) |
| Home Address | -15/1018-A, Nazareth, Kochi 682002, Kerala, India |

PRESENTATIONS (2017-2020)

1. **Invited Talk - *Electrochemical Two electron water oxidation to form hydrogen peroxide catalyzed by Silicon Porphyrins***
3rd International Symposium on Hydrogen Energy-based Society,
August 22-23, 2018, Tokyo, Japan.
2. **CSJ Presentation Award- *Silicon porphyrins for electrochemical water activation***
97th Annual Meeting Chemical Society of Japan,
March 16-19, 2017, Yokohama, Japan.
3. **General Talk - *Artificial Photosynthesis - Approaches and Bottlenecks***
CUSAT Knowledge Forum Talk, January 17, 2018, CUSAT, Kerala, India.

RESEARCH PUBLICATIONS

2020

1. *Protolytic behavior of water-soluble zinc(II) porphyrin and the electrocatalytic two-electron water oxidation to form hydrogen peroxide*; Abin Sebastian, Sebastian Nybin Remello, Fazalurahman Kuttassery, Siby Mathew, Yutaka Ohsaki, Hiroshi Tachibana, Haruo Inoue, **Journal of Photochemistry and Photobiology A: Chemistry**, **112619**.

2018

2. *Alternative route to bypass the bottle-neck of water oxidation: Two-electron oxidation of water catalyzed by earth-abundant metalloporphyrins*; Fazalurahman Kuttassery, Siby Mathew, Sebastian Nybin Remello, Arun Thomas, Keito Sano, Yutaka Ohsaki, Yu Nabetani, Hiroshi Tachibana, Haruo Inoue; **Coordination Chemistry Reviews**, **377**, **64–72**
3. *How does the tin(IV)-insertion to porphyrins proceed in water at ambient temperature?: Re-investigation by time dependent 1H NMR and detection of intermediates*; Yutaka Ohsaki, Arun Thomas, Fazalurahman Kuttassery, Siby Mathew, Sebastian Nybin Remello, Yu Nabetani, Tetsuya Shimada, Shinsuke Takagi, Hiroshi Tachibana, Haruo Inoue, **Inorganica Chimica Acta**, **482**, **914-924**.
4. *Two-electron oxidation of water to form hydrogen peroxide catalysed by silicon-porphyrins*; Sebastian Nybin Remello, Fazalurahman Kuttassery, Siby Mathew, Arun Thomas, Daisuke Yamamoto, Yu Nabetani, Keito Sano, Hiroshi Tachibana, Haruo Inoue; **Sustainable Energy & Fuels**, **2**, **1966-1973**.

5. *Two-Electron Oxidation of Water Through One-Photon Excitation of Aluminium Porphyrins: Molecular Mechanism and Detection of Key Intermediates*; Siby Mathew, Fazalurahman Kuttassery, Sebastian Nybin Remello, Arun Thomas, Daisuke Yamamoto, Satomi Onuki, Yu Nabetani, Hiroshi Tachibana, Haruo Inoue; **ChemPhotoChem** 2 (3), 240-248.
6. *Photochemical hydrogen evolution on metal ion surface-grafted TiO₂-particles prepared by sol/gel method without calcination*; Fazalurahman Kuttassery, Daisuke Yamamoto, Siby Mathew, Sebastian Nybin Remello, Arun Thomas, Yu Nabetani, Akihide Iwase, Akihiko Kudo, Hiroshi Tachibana, Haruo Inoue; **Journal of Photochemistry and Photobiology A: Chemistry** 358, 386-394.
7. *Protolytic behavior of axially coordinated hydroxy groups of Tin (IV) porphyrins as promising molecular catalysts for water oxidation*; Arun Thomas, Fazalurahman Kuttassery, Siby Mathew, Sebastian Nybin Remello, Yutaka Ohsaki, Daisuke Yamamoto, Yu Nabetani, Hiroshi Tachibana, Haruo Inoue; **Journal of Photochemistry and Photobiology A: Chemistry** 358, 402-410.

2017

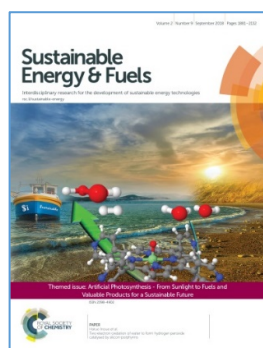
8. *One Electron Initiated Two Electron Oxidation of Water by Aluminum Porphyrins with Earth's Most Abundant Metal*; Fazalurahman Kuttassery, Siby Mathew, Shogo Sagawa, Sebastian Nybin Remello, Arun Thomas, Daisuke Yamamoto, Satomi Onuki, Yu Nabetani, Hiroshi Tachibana, Haruo Inoue; **ChemSusChem** 10 (9), 1909-1915.

2016

9. *Facile Synthesis of Water-Soluble Cationic Tin (IV) Porphyrins and Water-Insoluble Tin (IV) Porphyrins in Water at Ambient Temperature*; Arun Thomas, Fazalurahman Kuttassery, Sebastian Nybin Remello, Siby Mathew, Daisuke Yamamoto, Satomi Onuki, Yu Nabetani, Hiroshi Tachibana, Haruo Inoue; **Bulletin of Chemical Society of Japan**, 89, 902-904.

2015

10. *Visible light induced oxygenation of alkenes with water sensitized by silicon-porphyrins with the second most earth-abundant element*; Sebastian Nybin Remello, Takehiro Hirano, Fazalurahman Kuttassery, Yu Nabetani, Daisuke Yamamoto, Satomi Onuki, Hiroshi Tachibana, Haruo Inoue; **Journal of Photochemistry and Photobiology A: Chemistry** 313, 176-183.
11. *Synthesis of water-soluble silicon-porphyrin: protolytic behaviour of axially coordinated hydroxy groups*; Sebastian Nybin Remello, Fazalurahman Kuttassery, Takehiro Hirano, Yu Nabetani, Daisuke Yamamoto, Satomi Onuki, Hiroshi Tachibana, Haruo Inoue; **Dalton Transactions** 44 (46), 20011-20020.



Total 11 Publications (First Author – 3, Contributing Author -8)

WORKSHOPS & CONFERENCES (2017-2020)

- 1. Short Course on Surface Area and Porous Material Characterization, February 28, 2020 (1 Day)**
By Dr. Martin Thomas (Product Manager, Anton Parr), IIT Madras, Chennai, India.
- 2. International Conference on Ultrafast Spectroscopy February 21-22, 2020 (2 Days)**
By RSC and IISER Thiruvananthapuram, Kerala, India.
- 3. Short Term Research Fellowship May-June 2018 (60 days)**
Follow up Research Program for Former International Students, Tokyo Metropolitan University, Tokyo, Japan.
- 4. Induction Training for Newly Recruited Faculties March 14-16, 2018 (3 days)**
CEESA, CUSAT, Kerala, India
- 5. National Workshop on Diffraction Techniques: X-Ray and Electron Diffraction February 7-9 2018 (3 days)**
Sophisticated Test and Instrumentation Centre, CUSAT, Kerala, India

PROJECTS & FUNDING

| Individual | | | |
|------------|---|--|-----------------------|
| 1. | Development of porphyrin based Metal Organic Framework materials as catalyst for water splitting – Synthesis and Activity Study | UGC Start up Research Grant 1000000 INR | Ongoing 2019-2021 |
| 2. | Development of A3B porphyrins as potential ligands for Water Splitting Molecular Catalyst | SEED Money , CUSAT 300000 INR | Ongoing 2018-2021 |
| 3. | Metal Porphyrin incorporated Metal Organic Framework Materials for Photocatalytic Water Splitting- Preparation and Activation Study | RUSA-MHRD Fund for CUSAT, Government of India 2000000 INR | APPROVED Two Years |
| Group | | | |
| 4. | Development of functional materials/systems for artificial photosynthesis. (7 members) Role - Theme Coordinator | RUSA-MHRD Fund for CUSAT, Government of India, Overall Grant for the Theme 48796800 INR | APPROVED Two Years |

REFERENCES

- 1. Prof. Haruo Inoue**; Senior Leading Professor, Tokyo Metropolitan University 1-1 Minami-Ohsawa, Hachiohji, Tokyo, JAPAN 192-0397.
E-mail: inoue-haruo@tmu.ac.jp
- 2. Prof. K. Sreekumar**, Professor, Department of Applied Chemistry, CUSAT, Kerala, India 682022.
E-mail: ksk@cusat.ac.in

20 May 2021