

# CURRICULUM VITAE



## PERSONAL INFORMATION

Name **TSURUMAKI AKIKO**  
E-mail

## WORK EXPERIENCE

Date (from - to) **11/05/2016 – PRESENT**  
Position Assegnista di ricerca  
Name and address of institution Department of Chemistry, Sapienza University of Rome - Piazzale Aldo Moro 5, 00185, Rome

Date (from - to) **01/04/2015 – 09/05/2016**  
Position Project Assistant Professor  
Name and address of institution Institute of Global Innovation Research, Tokyo University of Agriculture and Technology - 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan

Date (from - to) **16/05/2012 – 31/03/2013**  
**01/04/2010 – 31/03/2011**  
Position Research Assistant  
Name and address of institution Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology - 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan

## EDUCATION AND TRAINING

Date (from - to) **01/04/2012 – 25/03/2015**  
Title of qualification awarded Doctor of Engineering  
Title of thesis Basic Studies and Functional Design of Fluorinated Polymer/Ionic Liquid Composites  
Name and address of institution Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology - 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan  
Supervisor Prof. Dr. Hiroyuki Ohno  
Highlights

- Elucidation of correlations among structure of ionic liquids, their physicochemical properties, and the compatibility with fluorinated compounds
- Synthesis of novel ionic liquids for the dissolution of barely soluble fluorinated polymers
- Design of polymer electrolytes based on poly(tetrafluoroethylene)

Date (from - to) **01/04/2010 – 31/03/2015**  
Title of qualification awarded Master of Engineering  
Title of thesis Evaluation of compatibility between ionic liquids and polymers for the design of ion conductive materials (written in Japanese)  
Name and address of institution Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology - 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan

Date (from - to)	<b>01/04/2006 – 31/03/2010</b>
Title of qualification awarded	Bachelor of Engineering
Title of thesis	Factors to control solubility of poly(ethylene oxide)s in ionic liquids (written in Japanese)
Name and address of institution	Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology - 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan

**RESEARCH  
FUNDING**

- Years **2018/2019**
- Type of fund (amount) / Source Progetti per Avvio alla Ricerca – Tipo 2 (2,000 EUR) / Sapienza University of Rome
- Project title Novel inorganic-organic hybrid solid electrolytes integrated with ionic liquids as macro- and nano-scale binders
  
- Years **2017/2018**
- Type of fund (amount) / Source Progetti per Avvio alla Ricerca – Tipo 2 (2,000 EUR) / Sapienza University of Rome
- Project title A new class of polymer electrolytes based on poly(tetrafluoroethylene) and fluoro-functionalized ionic liquids with the intent of improved stability of advanced lithium ion batteries
  
- Years **2017/2018**
- Type of fund (amount) / Source Financial support for leading research in science and technology (5,500 EUR) / Foundation for Interaction in Science & Technology, Japan
- Project title Improvement of thermal- and electrochemical-stability of electrolytes for lithium ion batteries by using fluorinated ionic liquids
  
- Years **2016/2017**
- Type of fund (amount) / Source Progetti per Avvio alla Ricerca – Tipo 2 (3,000 EUR) / Sapienza University of Rome
- Project title Fascicle preparation of novel polymer electrolytes based on poly(tetrafluoroethylene) and ionic liquids with the intent of improved stability of lithium ion batteries
  
- Years **2013/2015**
- Type of fund (amount) / Source DC2 Research Fellow (52,308 EUR) / Japan Society for the Promotion of Science (JSPS)
- Project title Design of ionic liquids as a solvent for poly(tetrafluoroethylene)
  
- Years **2012/2013**
- Type of fund (amount) / Source JIRITSU Research Scholarship (4,615 EUR) / Tokyo University of Agriculture and Technology
- Project title Design of ionic liquids as solvents for fluorinated polymers
  
- Years **2011/2011**
- Type of fund (amount) / Source International Training Program “International Program for Training Pre-Tenure-Track Young Researchers in Nano-Materials” (12,000 EUR) / Japan Society for the Promotion of Science (JSPS)
- Project title Design of ionic liquid/polymer composites as electrolytes (collaboration work with Prof. Bruno Scrosati’s group at the Sapienza University of Rome)
  
- Years **2011/2012**
- Type of fund (amount) / Source JIRITSU Research Scholarship (4,615 EUR) / Tokyo University of Agriculture and Technology
- Project title Factors to control micro-phase structures of ionic liquid/polymer composites
  
- Years **2010/2012**

- Type of fund (amount)

Honors Scholarship for study (8,123 EUR) / Japan Student Services Organization

## LIST OF PUBLICATIONS

- 2 Effect of the cation structure on cellulose dissolution in aqueous solutions of organic onium hydroxides, **A. Tsurumaki**, M. Tajima, M. Abe, D. Sato, and H. Ohno, *Phys. Chem. Chem. Phys.*, 2020, 22, 22602-22608.
- 3 A novel Li<sup>+</sup>-conducting polymer membrane gelled by fluorine-free electrolyte solutions for Li-ion batteries, M. A. Navarra, **A. Tsurumaki**, F.M. Vitucci, A. Paolone, O. Palumbo, S. Panero, *Batteries & Supercaps*, 2020, 3, 1112-1119.
- 4 Enhanced safety and galvanostatic performance of high voltage lithium batteries by using ionic liquids, **A. Tsurumaki**, M. Agostini, R. Poiana, L. Lombardo, E. Lufano, C. Simari, A. Matic, I. Nicotera, S. Panero, M. A. Navarra, *Electrochim. Acta*, 2019, 316, 1-7.
- 5 Bis(oxalato)borate and difluoro(oxalato)borate-based ionic liquids as electrolyte additives to improve the capacity retention in high voltage lithium batteries, **A. Tsurumaki**, M. Branchi, A. Rigano, R. Poiana, S. Panero, M. A. Navarra, *Electrochim. Acta*, 2019, 315, 17-23.
- 6 Preparation of epoxy resins derived from lignin solubilized in tetrabutylphosphonium hydroxide aqueous solutions, M. Nagatani, **A. Tsurumaki**, K. Takamatsu, H. Saito, N. Nakamura, H. Ohno, *In. J. Biol. Macromolecules*, 2019, 132, 585-591.
- 7 Polymerized ionic liquids as durable antistatic agents for polyether-based polyurethanes, **A. Tsurumaki**, T. Iwata, M. Tokuda, H. Minami, M. A. Navarra, H. Ohno, *Electrochim. Acta*, 2019, 308, 115-120.
- 8 Novel bis(fluorosulfonyl) imide-based and ether-functionalized ionic liquids for lithium batteries with improved cycling properties, **A. Tsurumaki**, H. Ohno, S. Panero, M. A. Navarra, *Electrochim. Acta*, 2019, 293, 160-165.
- 9 Gel polymer electrolytes based on silica-added poly (ethylene oxide) electrospun membranes for lithium batteries, M. A. Navarra, L. Lombardo, P. Bruni, L. Morelli, **A. Tsurumaki**, S. Panero, F. Croce, *Membranes*, 2018, 8, 126.
- 10 The effect of ether-functionalisation in ionic liquids analysed by DFT calculation, infrared spectra, and Kamlet–Taft parameters, **A. Tsurumaki**, F. Trequattrini, O. Palumbo, S. Panero, A. Paolone, and M. A. Navarra, *Phys. Chem. Chem. Phys.*, 2018, 20, 7989-7997.
- 11 Dissolution of oligo(tetrafluoroethylene) and preparation of poly(tetrafluoroethylene)-based composites by using fluorinated ionic liquids, **A. Tsurumaki** and H. Ohno, *Chem. Commun.*, 2018, 54, 409-412.
- 12 Evaluation of ionic liquids as novel antistatic agents for polymethacrylates, **A. Tsurumaki**, S. Tajima, T. Iwata, B. Scrosati and H. Ohno, *Electrochim. Acta*, 2017, 248, 556-561.
- 13 New ether-functionalized morpholinium- and piperidinium-based ionic liquids as electrolyte components in lithium and lithium-ion batteries, M. A. Navarra, K. Fujimura, M. Sgambetterra, **A. Tsurumaki**, S. Panero, N. Nakamura, H. Ohno, and B. Scrosati, *Chem. Sus. Chem.*, 2017, 10, 2496–2504.
- 14 Induction of lignin solubility for a series of polar ionic liquids by the addition of a small amount of water, T. Akiba, **A. Tsurumaki**, and H. Ohno, *Green Chem.*, 2017, 19, 2260-2265.
- 15 Dielectric relaxations of polyether-based polyurethanes containing ionic liquids as antistatic agents, **A. Tsurumaki**, F. Bertasi, K. Vezzu, E. Negro, V. Di Noto, and H. Ohno, *Phys. Chem. Chem. Phys.*, 2016, 18, 2369-2378.
- 16 Antistatic effects of ionic liquids for polyether-based polyurethanes, **A. Tsurumaki**, S. Tajima, T. Iwata, B. Scrosati and H. Ohno, *Electrochim. Acta*, 2015, 175, 13-17.

- 17 Bis(trifluoromethanesulfonyl)imide-type ionic liquids as excellent antistatic agents for polyurethanes, T. Iwata, **A. Tsurumaki** (equally contributed as first author), S. Tajima, and H. Ohno, *Macromol. Mat. Eng.*, 2014, 299, 794-798.
- 18 Fixation of ionic liquids into polyether-based polyurethane films to maintain long-term antistatic properties, T. Iwata, **A. Tsurumaki** (equally contributed as first author), S. Tajima and H. Ohno, *Polymer*, 2014, 55, 2501-2504.
- 19 N-n-Butyl-N-methylpyrrolidinium hexafluorophosphate-added electrolyte solutions and membranes for lithium-secondary batteries, **A. Tsurumaki**, M. A. Navarra, S. Panero, B. Scrosati, and H. Ohno, *J. Power Sources*, 2013, 233, 104-109.
- 20 Properties of polymer electrolytes composed of poly(ethylene oxide) and ionic liquids according to hard and soft acids and bases theory, **A. Tsurumaki**, J. Kagimoto, and H. Ohno, *Polym. Adv. Technol.*, 2011, 22, 1223-1228.

## PATENT

(特開 2018-24585)

セルロースアセテート溶解用イオン液体及びセルロースアセテート溶解液並びにセルロースアセテート繊維の製造方法 (Ionic liquids for dissolution and spinning of cellulose acetate)

## LIST OF PRESENTATIONS

Total	<b>41 ORAL PRESENTATIONS</b>
	<b>44 POSTER PRESENTATIONS</b>
Invited presentations	
1	Dissolution of woody biomass with onium hydroxide solutions, oA. Tsurumaki, PATHlestra, Aveiro, Portugal. (Jun 2016)
2	Ionic liquids as sustainable and designable antistatic agents for polymers, oA. Tsurumaki, F. Bertasi, K. Vezzú, S. Lavina, V. Di Noto, and H. Ohno, 1st Korea-Japan Joint Symposium on Ionic Liquids / Pre-Symposium of COIL6, Daegu, Korea. (Jun 2015)
3	Design of ionic liquids to enhance excellent and sustainable antistatic properties for polyetherbased polyurethanes, oA. Tsurumaki, 3rd Green Sustainable Chemistry Seminar, Tottori, Japan. (Dec 2014)
4	(Presented in Japanese) Milestones in Ph.D. course, oA. Tsurumaki, 95th Annual meeting of Japan Chemistry Society, Chiba, Japan. (Mar 2015)

## TEACHING ACTIVITIES

- Dates **2019/2020 – PRESENT**
- Subject The course of “Advanced Chemical Methods in Archaeological Material Science” LM-11 Scienze e Tecnologie per la Conservazione dei Beni Culturali
- Dates **2019/2020 – PRESENT**

- Subject Supervision of thesis as a “Relatore”  
**2019/2020** Shraddha Khairé “Development of cleaning procedures of copper corrosion products by using “green” deep eutectic solvents”  
**2020/2021** Bianca Werneck “Development of hydrogel for the conservation of ancient roman coins”

## **AWARDS**

- Title of recognition (year)  
• Organization and place  
**BEST POSTER AWARD (2019)**  
5th International Conference on Ionic Liquid-based Materials (ILMAT5), Paris, France
- Title of recognition (year)  
• Organization and place  
**BEST POSTER AWARD (2016)**  
International Meeting on Ionic Liquids for Electrochemical Devices (ILED2016), Rome, Italy