

# Arri Priimägi

Curriculum Vitae, 1.8.2024

## PERSONAL INFORMATION

Full name: Arri Priimägi.

Date of Birth: 27.06.1980 (Tallinn, Estonia).

Nationality: Estonian.

# EDUCATION

15.12.2014 **Docent**, *Tampere University of Technology*, on the topical area of Supramolecular

Chemistry.

24.11.2009 Doctor of Science and Technology, Helsinki University of Technology, passed

with distinction.

DISSERTATION: "Polymer-azobenzene complexes: from supramolecular concepts

to efficient photoresponsive polymers"

SUPERVISORS: Profs. Matti Kaivola and Olli Ikkala

15.09.2004 Master of Science and Technology, Tampere University of Technology, passed

with distinction.

DISSERTATION: "Nonlinear optical properties of self-assembled polymer systems"

Supervisor: Prof. Martti Kauranen

## OTHER TRAINING AND SKILLS

04.2016-12.2016 TAHTO Leadership Training, Tampere University of Technology.

09.2013-05.2014 **Pedagogical Training (10 CP)**, Aalto University School of Science.

## Language Skills

FINNISH (Native); ESTONIAN (Native); ENGLISH (fluent in spoken and written); JAPANESE (moderate); SWEDISH (moderate); GERMAN (elementary); RUSSIAN (elementary)

## PRESENT POSITION

01.2019 — **Professor**, Faculty of Engineering and Natural Scineces, Tampere University (TAU), Finland.

## PREVIOUS POSITIONS

- 05.2017–12.2018 **Associate Professor (Tenure Track)**, Laboratory of Chemistry and Bioengineering, Tampere University of Technology (TUT), Finland.
- 09.2014–04.2017 **Assistant Professor (Tenure Track)**, Laboratory of Chemistry and Bioengineering, Tampere University of Technology, Finland.
- 12.2013–08.2014 **International Research Fellow**, Department of Chemistry, Materials, and Chemical Engineering, Politecnico di Milano, Italy.
- 08.2010–11.2013 **Aalto Post-Doctoral Fellow**, Department of Applied Physics, Aalto University, Finland.
- 12.2010–12.2012 **Post-Doctoral Fellow of the Japanese Society for the Promotion of Science**, *Chemical Resources Laboratory, Tokyo Institute of Technology*, Japan.
- 10.2009–07.2010 **Post-Doctoral Researcher**, Department of Applied Physics, Aalto University, Finland.
- 10.2004–09.2009 **Doctoral Researcher**, Laboratory of Optics & Molecular Materials, Helsinki University of Technology, Finland.
- 08.2003–09.2004 **Research Assistant**, Department of Physics, Nonlinear Optics Group, Tampere University of Technology, Finland.
- 05.2001–12.2002 **Part-Time Research Assistant**, Department of Physics, Applied Optics Group, Tampere University of Technology, Finland.

## Scientific Acknowledgements and Awards

- 2024 Membership of the Finnish Academy of Science
- 2022 ERC Consolidator Grant "MULTIMODAL"
- 2022 ERC Proof of Concept Grant "HOLOSHAPE"
- 2022 ERC Proof of Concept Grant "L-CELL"
- 2020 Cozzarelli Prize Finalist (for the best papers published in PNAS in 2020)
- 2018 Academy of Finland Award for Scientific Courage
- 2018 ERC Proof of Concept Grant "OPTOSENSE"
- 2016 Outstanding Paper Award by the Japanese Liquid Crystal Society
- 2016 ERC Starting Grant "PHOTOTUNE"
- 2014 Academy of Finland Research Fellowship
- 2013 Politecnico di Milano International Fellowship
- 2010 Post Doctoral Fellowship for the Japanese Society for the Promotion of Science
- 2010 Aalto Post Doctoral Fellowship
- 2009 Outstanding Doctoral Dissertation Award, granted by the Finnish Academy of Science and Letters

# RESEARCH FUNDING (AS A PI, TOTAL CA. 13 M€)

- 02.2024–07.2025 ERC Proof of Concept Grant "HOLOSHAPE Light-driven surface shaping for holographic optical elements". Total funding **150 000 €**.
- 01.2023–12.2028 AKA Profiling Funding (profi 7 action) for "Sustainable Biomedical and Toxicological Research". Responsible project leaders A. Priimägi & M. Kellomäki; Total funding **3 500 000 €**.

- 01.2023–12.2027 ERC Consolidator Grant "Multimodal Sensory-Motorized Material Systems". Total funding 1 998 760 €.
- 08.2022–01.2024 ERC Proof of Concept Grant "*L-CELL Light-Reconfigurable Cell Culture Plat-* forms". Total funding **150 000** €.
- 01.2022–09.2029 Academy of Finland Center of Excellence on "*Life-Inspired Hybird Materials Research*". Consortium mwith 8 PIs, with my share of funding from AKA ca. **2 000 000** €.
- 02.2021–01.2025 Marie Curie Training Network "Soft and tangible organic responsive materials progressing robotic functions". Total funding for TAU **562 000** €.
- 01.2021–06.2022 "Research to Business" project funded by Business Finland: "OPTOSENSE Optical humidity sensing using photoswitchable molecules". Total funding for TAU **479 000** €.
- 01.2020–12.2022 Tampere University-targeted multidisciplinary research project from Emil Aaltonen Foundation. Total funding **300 000 €**. Project title: Light robots—towards autonomous platform driven by biological feedback.
- 09.2019–08.2023 Research project "*Photo-controlled active plasmonics*", Academy of Finland consortium with Prof. Anton Kuzyk. My share of funding from AKA **383 000** €.
- 09.2018–08.2021 Research project "Energy autonomous wireless sensor systems powered by printed light energy harvesting and storage", Academy of Finland consortium with Prof. Donald Lupo and Prof. Kari Halonen. My share of funding from AKA **303 000 €**.
- 09.2018–02.2020 ERC Proof of Concept Grant "Optical sensing of relative humidity using photoswitchable molecules". Total funding **150 000** €.
- 01.2018–11.2018 Research opening "TUT-KAIST Initiative on Organic and Hybrid Electronics", TUT seed funding, **15 000 €**.
- 09.2017–08.2021 Research project *Supramolecular Electronics*, Academy of Finland. Total funding from AKA **475 000** €.
- 05.2016–04.2021 ERC Starting Grant "Tunable Photonic Structures via Photomechanical Actuation.

  Total funding 1 486 000 €.
- 09.2014–08.2019 Academy Research Fellowship project "Halogen-Bonded Photocontrollable Functional Materials". Total funding from AKA **735 000** €.
- 01.2014–12.2016 Emil Aaltonen Foundation Project Grant "*Halogen-Bonded Photoresponsive Suprastructures*". Total funding **200 000** €.
- 12.2010–12.2012 Post Doctoral project "Photomechanics and optical storage in photoresponsive liquid-crystal materials", at Chemical Resources Laboratory, Tokyo Institute of Technology (host researcher Prof. Atsushi Shishido). Total funding (research & living allowance, incl. support from Finland): 115 000 €.
- 08.2010-07-2013 Aalto Post Doctoral Fellowship. Total funding **180 000** €. NOTE: As my personal salary was covered by the Japanese Society for the Promotion of Science Fellowship, this funding was used for hiring students and for advancing the photoresponsive materials research at Aalto University.
- 01.2010–12.2013 Optically Controlled Photoresponsive Polymer Materials (PHORMAT Consortium, PI Prof. Matti Kaivola), Academy of Finland. Total funding **863 049** €. NOTE: The application was built upon my PhD work, and I took the main responsibility in planning and writing the project application.
- 01.2006–12.2009 Doctoral research funding provided by the National Graduate School in Materials Physics.

#### **Postdoctoral Level**

- ♦ Jie Jiang, TAU (01/2024–).
- ♦ Shuai Zhang, TAU (11/2023–).
- ♦ Kim Kuntze, TAU (09/2023–03/2024).
- ♦ Qi Yang, TAU (06/2023–).
- ♦ Kevin Chevrier, TAU (01/2023–07/2023).
- ♦ Hongshuang Guo, TAU (10/2020–).
- ♦ Rakesh Puttreddy, TAU (09/2019–08/2021).
- ♦ Chiara Fedele, TAU (06/2017–08/2023).
- ♦ Matti Virkki, TAU (12/2016–01/2023).
- ♦ Hao Zeng, TAU (05/2016–08/2022).
- ♦ Heikki Rekola, TAU (02/2018–01/2020).
- ♦ Nikita Durandin, TAU (09/2017–08/2019).
- ♦ Tero-Petri Ruoko, TUT (07/2017–07/2018; 08/2021–01.2024).
- ♦ Zafar Ahmed, TUT (01/2016–12/2018).
- ♦ Jaana Vapaavuori, TUT (09/2015–02/2017).
- ♦ Marco Saccone, TUT (06/2015–06/2017).
- ♦ Jelle Stumpel, Aalto & TUT (05/2015–08/2018).

#### PhD Level

- ♦ Artem Boichuk, TAU (ongoing).
- ♦ Matias Paatelainen, TAU (ongoing).
- Henning Meteling, TAU (ongoing).
- Sami Vesamäki, TAU (ongoing).
- ♦ Roshan Nsare, TAU (ongoing).
- ♦ Yasaman Nemati, TAU (ongoing).
- ♦ Zixuan Deng, TAU (ongoing).
- ♦ Mari Isomäki, TAU (ongoing).
- Antti Siiskonen, TAU (ongoing).
- ♦ Alex Berdin, TAU (grad. April 2024). Thesis title: "Holographic recording in azobenzene films".
- ♦ Kim Kuntze, TAU (grad. August 2023). Thesis title: "Strategies for red-light photoswitching".
- ♦ Suvi Holmstedt, TAU (grad. September 2021). Thesis title: "Conversion of biomass-based compounds into added-value chemicals".
- Markus Lahikainen, TAU (grad. October 2021). Thesis title: "Advanced control strategies of light-responsive polymers for soft robotics".
- ♦ Jagadish Salunke, TAU (grad. January 2021). Thesis title: "Low-cost phenothiazine- and pyrene-based hole hole-transporting materials for halide perovskite solar cells".
- Owies Wani, TAU (grad. May 2019). Thesis title: "Bioinspired Light Robots from Liquid Crystal Networks".
- Mikko Poutanen, Aalto (grad. September 2018). Thesis title: "Interplay of Light and Self-Assembly in Functional Soft Materials From Photo-Controlled to Photonic Structures".
- Matti Virkki, TUT (grad. October 2017). Thesis title: "Supramolecular Materials for Photocontrolled Optical Nonlinearity".
- Jenni Koskela, Aalto (grad. January 2015). Thesis title: "Light-fuelled motions in azobenzene-containing materials: From supramolecular design to new applications".
- Jaana Vapaavuori, Aalto (grad. June 2013). Thesis title: "Design of efficient photoresponsive azobenzene materials through supramolecular functionalization".

## MSc & BSc Level

- ♦ Simo Rantamäki, TAU (MSc, 2024).
- ♦ Kimiya Tajik, TAU (MSc, 2024).
- Islam Arida, TAU (MSc, 2023).
- ♦ Altti Mäkelä, TAU (BSc, 2023).
- ♦ Jani Viljakka, TAU (MSc, 2021).
- ♦ Matias Paatelainen, TAU (MSc, 2021).
- ♦ Md Aman Khan, TAU (MSc, 2019).
- Seidi Helanterä, TAU (BSc, 2019).
- ♦ Matias Paatelainen, TAU (BSc, 2019).
- ♦ Kim Kuntze, TAU (MSc, 2019).
- ♦ Essi Tervola, TAU (MSc, 2019).
- ♦ *Hamzah Mukhtar*, TUT (2018, MSc).
- ♦ Jani Viljakka, TUT (BSc, 2018).
- ♦ Emma Rajala, TUT (MSc, 2018).
- ♦ Jani Patrakka, TUT (BSc, 2017).
- ♦ Kim Kuntze, TUT (BSc, 2017).
- ♦ Markus Lahikainen, TUT (MSc, 2016).
- ♦ Ossi Lehtonen, Aalto (BSc, 2015).
- ♦ Joel Kauppo, Aalto (BSc, 2014).
- ♦ *Matti Virkki*, TUT (MSc, 2011).
- ♦ Mikael Leben, Aalto (MSc, 2011).
- ♦ Jaana Vapaavuori, Aalto (MSc, 2008).
- ♦ Juuso Korhonen, Aalto (MSc, 2007).

# SCIENTIFIC ACTIVITIES

#### Publication Summary

**Publications in refereed scientific journals: 149**, including papers in *Science*, *Nat. Mater.*, *Nat. Nanotech.*, *Nat. Photon.*, *Nat. Commun.*; *Adv. Mater.*, *PNAS*, *JACS*, *ACIE*, ...

**Publications metrics:** H-index 51, total number of citations 13 360 (Google Scholar 1.8.2024) **Invited conference presentations / lectures at universities:** 54 / 29.

## Pre-examination/Opponence of PhD Theses

- 2024 **Alexandra Gablier**, University of Cambridge, Cavendish Laboratory. Role: Thesis Opponent.
- 2024 **Jan Boelke**, Humboldt University Berlin, Department of Chemistry. Role: Thesis Opponent.
- 2024 **Ray Dinardi**, University of New South Wales, School of Chemistry. Role: Pre-examiner.
- 2023 **Ankit Kumar Gaur**, IISER Mohali, Department of Chemical Sciences. Role: Pre-examiner.
- 2022 **Roel van Raak**, Technical University of Eindhoven, Department of Chemical Engineering and Chemistry. Role: Opponent committee member.
- 2022 Kaspars Leduskrasts, Latvian Institute of Organic Synthesis. Role: Thesis Opponent.
- **Joachim Jelken**, University of Potsdam, Institute of Physics and Astronomy. Role: Pre-examiner.

- 2019 **Stijn Kragt**, Technical University of Eindhoven, Department of Chemical Engineering and Chemistry. Role: Opponent committee member.
- 2019 **Sara Pourjamal**, Aalto University, Department of Applied Physics. Role: Pre-examiner.
- 2018 **Selene De Martino**, University of Napoli, The Center for Advanced Biomaterials for Healthcare @ IIT. Role: Pre-examiner.
- 2018 **David Feldmann**, University of Potsdam, Institute of Physics and Astronomy. Role: Pre-examiner.
- 2017 **Dmitry Nuzhdin**, University of Firenze, European Laboratory for Non Linear Spectroscopy (LENS). Role: Pre-examiner.
- 2017 **Chiara Fedele**, University of Napoli, The Center for Advanced Biomaterials for Healthcare @ IIT. Role: Pre-examiner.
- 2016 **Francisco Fernandez-Palacio**, Politecnico di Milano, Department of Chemistry, Materials and Chemical Engineering "Giulio Natta". Role: Opponent committee member.
- 2015 **Abdellah Malti**, Linköping University, Department of Science and Technology. Role: Opponent committee member.
- 2014 Luca Colombo, JingXiang Lin, Marco Saccone, Politecnico di Milano, Department of Chemistry, Materials and Chemical Engineering "Giulio Natta". Role: Opponent committee member.

## PhD Thesis Follow-Up Group Memberships

- ♦ Heidi Vänskä, TAU (ongoing).
- Giorgia Migliaccio, TAU (ongoing).
- Heidi Peussa, TAU (ongoing).
- Maija Kauppila, TAU (ongoing).
- ♦ Essi Tervola, University of Jyväskylä. Thesis title: "Synthetic and Structural Studies on the Effect of Non-Covalent Interactions on N(sp2)-Heterocyclic Molecules" (grad. 2022).
- Anastasia Koivikko, TAU. Thesis title: "Grippers and sensors for soft robots" (grad. 2022).

# Conference Organization & Program Committee Memberships

- 08.2025 International Liquid Crystal Elastomer Conference, Tampere, Finland. *Role:* **Conference chair**.
- 06.2025 6th ERC Grantees Conference in Chemistry, Porvoo, Finland. *Role: Conference chair.*
- 12.2023 4th International Conference on Photoalignment and Photopatterning in Soft Materials, St. Petersburg, FL, USA. *Role: Program committee member.*
- 09.2023 International Symposium as part of STORM-BOTS Doctoral training network activities, Tampere, Finland. Two-day international scientific seminar with ca. 50 participants. *Role:* **Symposium chair**.
- 06.2019 XIV International Symposium on Macrocyclic and Supramolecular Chemistry, Lecce, Italy. *Role: Organizing committee member.*

- 06.2018 3rd International Conference on Photoalignment and Photopatterning in Soft Materials, Tampere, Finland, ca. 120 participants from > 20 countries. *Role:* **Conference chair**.
- 04.2018 TUT-KAIST Seminar on Orgnaic and Hybrid Electronics, Tampere, Finland. One-day seminar with speakers from Korea, Finland, and Germany, ca. 60 participants. *Role:* **Seminar chair**.
- 07.2017 Seminar on Soft-Matter Robotics and Photonics, Tampere, Finland. One-day seminar with speakers from Finland, Italy, Poland, Taiwan, ca. 30 participants. *Role:* **Seminar chair**.
- 11.2016 2nd International Conference on Photoalignment and Photopatterning in Soft Materials, Nagoya, Japan. *Role: Program committee member*.
- 12.2014 1st International Conference on Photoalignment and Photopatterning in Soft Materials, Hong Kong. *Role: Program committee member.*
- 05.2014 Optics and Photonics Days 2014, Turku, Finland. *Role: Program committee member.*
- 05.2013 96th Canadian Chemistry Conference, Symposium on Stimuli-Responsive Materials, Quebec, Canada. *Role: Program committee member.*

## EVALUATION OF RESEARCH PROPOSALS

- 2024 External Reviewer for VIdi grants, Netherlands Organisation for Scientific Research (NWO).
- 2023 Evaluation panel member, Estonian Research Council.
- 2023 External Reviewer, ERC Consolidator Grant Projects.
- 2022 Evaluation panel member, Estonian Research Council.
- 2022 Evaluation panel member, Finnish Cultural Foundation.
- 2022 External Reviewer, ERC Starting Grant Projects.
- 2022 External Reviewer, Hongkong Research Council.
- 2021 External Reviewer, ERC Starting Grant Projects.
- 2019 External Reviewer, The Fund for Scientific Research of Belgium (FNRS).
- 2020 External Reviewer, Netherlands Organisation for Scientific Research (NWO).
- 2020 External Reviewer, Netherlands Organisation for Scientific Research (NWO).
- 2019 External Reviewer, The Fund for Scientific Research of Belgium (FNRS).
- 2019 External Reviewer, ERC Starting Grant Projects.
- 2018 External Reviewer, ERC Starting Grant Projects.
- 2017 External Reviewer, New York University Abu Dhabi Research Grants (NYU).
- 2016 External Reviewer, Netherlands Organisation for Scientific Research (NWO).
- 2015 External Reviewer, Natural Sciences and Engineering Council (NSERC), Canada.

## Membership of Tenure-Track Committees & Other Academic evaluation tasks

- 2019 Tenure Track in Chemistry (2 positions), Faculty of Engineering and Natural Sciences, Tampere University.
- 2018 Tenure Track in Photonics (2 positions), Faculty of Natural Sciences, Tampere University of Technology.

- 2016 Tenure Track in Experimental Optics and Photonics (2 positions), Faculty of Natural Sciences, Tampere University of Technology.
- 2016 Tenure Track in Biotechnology and Circular Economy (2 positions), Department of Chemistry and Bioengineering, Tampere University of Technology.

## Administrative Duties

- 01.2020 Responsible professor for the Chemistry major at TAU
- 06.2018–12.2022 Steering group member, International MSc program on Photonics Technologies
  - 04.2017 Management board member, Tampere Microscopy Center
- 09.2015–12.2016 Management board member, Department of Chemistry and Bioengineering, TUT

## Positions of Trust

- 05.2024– Member of the steering board of Doctoral Programme in Engineering and Natural Sciences at ENS, TAU.
- 02.2024 Chair of the Tenure track monitoring group of Tampere University.
- 01.2024 Vice chair of the Academic Board of Tampere University.
- 01.2022–12.2023 Member of the Academic Board of Tampere University.
- 03.2019–12.2021 Vice Chair of the Professors' Council of Tampere University.
- 08.2015-05.2016 Board Member in Photonics Finland.

## Editorial Activities

- 2019 Guest Editor in *Advanced Materials*, for a special issue "From responsive Molecules to Interactive Materials", with Prof. Stefan Hecht.
- 2016 Guest Editor in *Molecules*, for a special issue on "*Photoresponsive Polymers*", with Prof. Haifeng Yu and Prof. Xiaogong Wang.

## REVIEWER FOR SCIENTIFIC JOURNALS (> 100 JOURNALS IN TOTAL)

ACS Applied Materials & Interfaces, ACS Applied Optical Materials, ACS Macro Letters, ACS Applied Polymer Materials, ACS Nano, Advanced Device Materials, Advanced Intelligent Systems, Advanced Materials, Advanced Materials Interfaces, Advanced Optical Materials, Advanced Science, Angewandte Chemie International Edition, Applied Physics Letters, Applied Physics Reviews, Arabian Journal of Chemistry, **Chem**, Bulletin of the Chemical Society of Japan, Chemical Communications, Chemical Record, Chemical Reviews, Chemical Science, Chemistry: An European Journal, Chemistry of Materials, ChemistrySelect, ChemPhotoChem, ChemPhysChem, Chemical Physics, Chemical Record, Communications Chemistry, Crystal Growth & Design, CrystEngComm, Current Opinion in Colloid & Interface Science, Dyes and Pigments, Extreme Mechanics Letters, Frontiers in Chemistry, Frontiers in Robotics and AI, International Journal of Polymer Science, Journal of Applied Physics, Journal of Colloid And Interface Science, Journal of Materials Chemistry C, Journal of Molecular Liquids, Journal of Nanoparticle Research, Journal of Organic Chemistry, Journal of Photochemistry & Photobiology A, Journal of Photochemistry & Photobiology C, Journal of Physical Chemistry, Journal of Physical Chemistry Letters, Journal of Polymer Science, Part A: Polymer Chemistry, Journal of Polymer Science, Part B: Polymer Physics, Journal of the American Chemical Society, Journal of the Society for Information Display, Langmuir, Macromolecular Chemistry & Physics, Materials Advances, Materials Horizons, Materials Chemistry and Physics, Materials Chemistry Frontiers, Matter, Molecular Crystals & Liquid Crystals, Macromolecular Materials and Engineering, Macromolecular Rapid Communications, Macromolecules, Materials Today Chemistry, Molecules, Nano Letters, Nanophotonics, Nanoscale, Nature Chemistry, Nature Communications, Nature Materials, New Journal of Chemistry, Optical Materials, Optical Materials Express, Optics Express, Optics Letters, Physical Review Letters, Photochemical & Photobiological Sciences, Physica Status Solidi B, Polymer, Polymers, Polymer Chemistry, Proceedings of the National Academy of Sciences USA, Proceedings of the Estonian Academy of Sciences, RSC Advances, Science Advances, Science of Advanced Materials, Science Robotics, Scientific Reports, Small, Soft Matter, Soft Robotics

## Teaching Activities

- ♦ Nanohemistry, 5CP, responsible teacher.
- ♦ **Orientation to Doctoral Studies, 4CP**, course coordinator.
- ♦ Engineering Chemistry (suom. Insinöörikemia, 3CP), lectured twice per year at TUT, basic chemistry course given to 1st year students, with attendance of > 600 students annually. I am the responsible teacher giving the lectures (13\*2h), coordinating the exercise sessions, and doing the grading and overall management.
- ⋄ Organic Solar Cells (3CP), spring 2016, TUT. This special course was launched by Dr. Riikka Lahtinen and myself, with the aim of studying the applicability of massive online open courses as part of our teaching agenda. The target groups were PhD and advanced MSc levels, with attendance of ca. 15 students.
- ♦ Laboratory assignment on optical tweezers, 2007–2009, Aalto University. Role: planning and building the experiment together with Dr. Klas Lindfors, instructing students in the laboratory (2nd year BSc level), correcting and grading the reports.
- ♦ Laser Technology and Optics, years 2005–2007, Aalto University. Role: Teaching assistant (responsible teacher Prof. Matti Kaivola).
- ♦ Engineering physics 2. Electromagnetism and Modern Physics, 2003, TUT. Role: Teaching assistant (responsible teacher Dr. Martti Vulli).