Jun.-Prof. Dr. Philipp Rothemund

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Academic Positions

Sep 2023 – present	**Tenure-Track Junior Professor**, University of Stuttgart (Germany) Institute for Adaptive Mechanical Systems, Faculty 7 Chair-Holder: *Functional Soft Robotic Matter for Autonomous Systems* Key publication: Milana et al. Physical control: A new avenue to achieve intelligence in soft robotics. *Science Robotics* **10**, eadw7660 (2025)
Sep 2023 – present	**Visiting Scientist**, Max Planck Institute for Intelligent Systems (Germany) Robotic Materials Department Key publication: Joo et al. Ultralight soft electrostatic actuators based on solid-liquid-gas architectures. *Nature Communications* **17**, 1929 (2026)
May 2023 – present	**Faculty member,** International Max Planck Research School for Intelligent Systems (Germany)

Education

Sep 2012 – Mar 2018	**PhD in Engineering Sciences**, Harvard University (USA) Supervisors: Zhigang Suo, George M. Whitesides
Jun 2012 – May 2014	**MS in Engineering Sciences**, Harvard University (USA) GPA: 4.00 of 4.00 Supervisor: Zhigang Suo
Sep 2009 – Jun 2012	**MS in Mechanical Engineering**, ETH Zurich (Switzerland) GPA: 6.00 of 6.00 Supervisor: Edoardo Mazza
Oct 2006 – Aug 2009	**BS in Mechanical Engineering**, ETH Zurich (Switzerland) GPA: 5.81 of 6.00 ETH Zurich, Supervisor: Paolo Ermanni
Sep 1997 – Jun 2006	**High School Degree**, Gymnasium Tutzing (Germany) GPA: 1.4

Research Interests

Functional soft materials have the potential to revolutionize robots and other machines by embodying functions into their hardware, which are currently implemented using sensing and feedback control. My research focuses on functions enabled by static and dynamic nonlinear phenomena of soft materials resulting from mechanical effects, materials behavior, and multiphysics couplings. I study these phenomena with experimental and theoretical tools from mechanics, physics, and materials science and apply the gained knowledge to design robots and autonomous systems with new functions. Applications are bioinspired, lifelike robots, conformable haptic devices, and structures that passively react to and interact with their environment.

Awards, Scholarships, and Honors

Jan 2026 – Dec 2029	**Member of WIN-Kolleg** at the *Heidelberg Academy of Sciences*
Dec 2025	**ERC Consolidator Grant** (Project: *PHASEBOT*)
Nov 2025	**Top 40 under 40** of German business magazine *Capital*
Mar 2025 – Feb 2027	**Scholarship Program for Postdoctoral Researchers and Junior Professors**, Daimler and Benz Foundation

Oct 2024	**Young Leader Program** at **STS Forum** in Kyoto, Japan
Jun 2023 – Jun 2028	**Member of Junge Akademie** at the German National Academy of Sciences Leopoldina and the Berlin-Brandenburg Academy of Sciences and Humanities **Speaker of Junge Akademie** 2025-2026 **Board member** 2024-2026
Mar 2020	**PAC Travel Award** (to attend a conference)
Jun 2013	**Chen Fellowship** (for tuition and fees for the first academic year of the Ph.D. program)
May 2013	**Willi Studer Price 2013** (for best master's degree of the year)
Mar 2010	**D-MAVT Bachelor Award** (for best bachelor's degree of the year)

Previous Academic Positions

Sep 2023 – Aug 2023	**Senior Postdoctoral Researcher**, MPI for Intelligent Systems (Germany) Robotic Materials Department Key publication: Rothemund P., et al. Shaping the future of robotics through materials innovation. *Nature Materials* **20**, 1582 (2021)
Jan 2019 – Aug 2020	**Postdoctoral Researcher**, University of Colorado Boulder (USA) Keplinger Research Group, Department of Mechanical Engineering Key publication: Rothemund P., et al. Dynamics of Electrohydraulic Actuators. *PNAS* **117**, 16207 (2020)
Sep 2018 – Jan 2019	**Lecturer**, Universidad Pontificia Comillas (Spain) Escuela Técnica Superior de Ingeniería ICAI Lecturer for the class *Multiphysics Simulation*
Jul 2012 – Mar 2018	**Doctoral Researcher**, Harvard University (USA) Suo Group, School of Engineering and Applied Sciences Whitesides Group, Department of Chemistry and Chemical Biology Key publication: Rothemund P. et al. A Soft, Bistable Valve for Autonomous Control of Soft Actuators. Sci. Robot. 3, eaar7986 (2018)

Grant Writing Experience

Own funding

May 2026 – Apr 2031	**ERC Consolidator Grant**, *Phase Transitions for the Generation and Control of Complex Motion in Soft Robots (PHASEBOT)*, Budget: ca. **1'997'000 €**
Jan 2026 – Dec 2028	**Heidelberg Academy of Sciences**, *Decoding Dynamics of Aerial Body Control by Bridging Biology and Robotics (Tails in Motion)*, Budget: ca. **283'000 €** Co-PI: M. Janneke Schwaner
Mar 2025 – Feb 2027	**Daimler and Benz Foundation**, *Electromechanics of zipping in electrohydraulic artificial muscles*, Budget: **40'000 €**
Jan 2024 – Dec 2026	**SC SimTech** - Cluster of Excellence EXC 2075 "Data-Integrated Simulation Science", *Soft Deformation Sensor with High Spatial Resolution Through Impedance Spectroscopy*, Budget: ca. **182'000 €**
Jan 2022 – Dec 2022	**MPI-IS Grassroots funding**, *Soft Robot Finger with Integrated Proprioceptive Tactile Skin*, Budget: **19'000 €** Co-PI: Hyosang Lee

Contribution to proposals

2020	**FlexTech**, *Untethered Soft Robot Enabled by Flexible High-Voltage Drivers and Electro-Hydraulic Continuum Actuators*, Budget: ca. **455'000 US$** PI: Gregory Whiting

2018	**National Science Foundation (USA)**, *Investigating Tunneling Across Self-Assembled Monolayers Using the Eutectic GaIn Junction*, Budget: ca. **780'000 US$** PI: George M. Whitesides
2014	**BASF**, *Pre-Project Evaluation of Polyurethanes as Electroactive Materials*, Budget: ca. **85'000 US$** PI: Zhigang Suo

Teaching Experience

New Course Development

***Design of Soft Robotic Devices* -** This master-level course introduces participants to the design and working principles of soft robotic devices, including fluid-driven soft actuators, electrostatic soft actuators, and resistive and capacitive sensors. Students learn how to fabricate and characterize these devices in laboratory exercises. At the end of the class, students apply what they have learned in a design project.

***Fundamentals of Soft Robotics* -** This master-level course introduces participants to the fundamental working principles of soft robotic devices, including soft actuators, sensors, and generators. Students learn the underlying physics of the most important types of soft transducers and basic techniques for modeling their behavior. The class also discusses the advantages and disadvantages of different soft transducer technologies so participants learn the opportunities and limitations of soft robotics in practical applications.

***Multiphysics Simulations* -** Master-level class that teaches the basics of multiphysics finite element simulations. I was responsible for developing and teaching lectures on topics such as linear and nonlinear finite element simulations, continuum and structural mechanics, buckling and modal analysis, explicit and implicit dynamics, heat transfer, and acoustics. The class included the theory of the finite element method as well as hands-on experience using commercial finite element software (ANSYS).

University of Stuttgart

Summer 2026	**Fundamentals of Soft Robotics**
Winter 2025	**Design of Soft Robotic Devices**
Summer 2025	**Fundamentals of Soft Robotics**
Winter 2025	**Mechanik 1 (EE und VIng)**
Summer 2025	**Fundamentals of Soft Robotics**
Winter 2025	**Mechanik 1 (EE und VIng)** (taught last 3rd of semester)

Before joining the University of Stuttgart

Fall 2018	Lecturer, **Multiphysics Simulations**, Universidad Pontificia Comillas
Fall 2015	Teaching fellow, **Engineering Thermodynamics**, Harvard University
Spring 2015	Head teaching fellow, **Introduction to the Mechanics of Solids**, Harvard University
Spring 2013	Teaching fellow, **Introduction to Heat Transfer**, Harvard University
Spring 2009	Teaching assistant for **Dimensioning II**, ETH Zurich
Fall 2008	Teaching assistant for **Control Systems I**, ETH Zurich
Spring 2008	Teaching assistant for **Engineering Materials and Production II**, ETH Zurich
Fall 2007	Teaching assistant for **Engineering Materials and Production I**, ETH Zurich

Advising and Mentoring Experience

Postdoctoral Students

Jan 2026 – present	Chloe Goode

Ph.D. Students

Jun 2024 – present	Dogan Acar
Jun 2024 – present	Svetlana Shachneva

M.Sc. Students

March 2026 – present	Erim Turgut Emel, *Design of small-scale electrohydraulic artificial muscles*

May 2025 – Nov 2025	Ikechukwu Nwachi, *Design, modelling, and experimental characterization of undulating fin to investigate and optimize resonant oscillation for propulsion of biomimetic swimming robots*
May 2025 – Nov 2025	Shrey Gupta, *Multiphysics Finite Element Simulation of Electro-Hydraulic Zipping*
Jun 2023 – Nov 2023	Malte Hendrikson, *Experimental Investigation of Electrostatic Zipping*

Before joining the University of Stuttgart
Informal supervision of 6 Ph.D. students at the Max Planck Institute for Intelligent Systems
Informal supervision of 3 Ph.D. students and 1 M.Sc student at the university of Colorado Boulder
Informal supervision of 1 M.Sc. students and 1 B.Sc student at Harvard University

Professional Service

Ph.D. Examiner

Oct 2024	Moon Kwang, University of Stuttgart (Germany), Supervisor: Syn Schmitt
Dec 2024	Zachary Yoder, University of Stuttgart (Germany), Supervisor: Christoph Keplinger
Mar 2024	Giulio Grasso, EPFL Lausanne (Switzerland), Supervisor: Herbert Shea

Workshops and Conferences

Jun 2026	Scientific advisor for Conference *Shaping the Future of Soft Electrostatic Actuators*, Kreuth (Germany)
Apr 2025	Workshop coordinator for *Soft Robotic Actuation and Sensing Based on Functional Materials* at the 8th IEEE – RAS International Conference on Soft Robotics (Robosoft 2025), Lausanne (Switzerland)
Jun 2024	Conference chair for *Twelfth Conference of the European Society for Electromechanically Active Polymer Transducers & Artificial Muscles*, Stuttgart(Germany)
Jun 2022	Conference chair for *Shaping the Future of Robotics through Materials Innovation*, Kreuth (Germany)

Committee Membership

Jun 2025 – present	Permanent Guest of DFG Senate
Jun 2024 – present	Chair of the conference committee of the European Society for Electromechanically Active Polymer Transducers & Artificial Muscles
Jun 2022 – Jun 2024	Member of the conference committee of the European Society for Electromechanically Active Polymer Transducers & Artificial Muscles

Editing experience

2026	Associated editor for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
2025	Associated editor for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
2025	Guest Editor for Special issue for EuroEAP 2024
2024	Guest Editor for Special issue for EuroEAP 2023
2022 – present	Associate Editor for Frontiers in Robotics and AI
2021 – 2022	Review Editor for Frontiers in Robotics and AI

Reviewing experience

Journals	Nature Materials, Advanced Materials, Science Robotics, Proceedings of the National Academy of Sciences of the United States of America (PNAS), Nature Communications, Science Advances, ACS Nano, Scientific Reports, Advanced Materials Technologies,

	Journal of the American Chemical Society, Soft Robotics, Extreme Mechanics Letters, ACS Applied Materials & Interfaces, Frontiers in Robotics and AI, Frontiers in Bioengineering and Biotechnology, Applied Physics Letters, Sensors and Actuators A: Physical, Smart Materials and Structures, IEEE Robotics and Automation Letters, IEEE Transactions on Robotics, IEEE Transactions on Mechatronics, Nonlinear Dynamics, Journal of Fluids and Structures, Robosoft 2020, Robosoft 2022, Robosoft 2024, ICRA 2021, ICRA 2022, Actuators.
Grants	European Research Council (ERC), Volkswagen Foundation, Swiss National Science Foundation (SNSF), German-Israeli Foundation for Scientific Research and Development (GIF)

Other Leadership and Management Experience

University of Stuttgart
Establishing and leading the newly founded Institute for Adaptive Mechanical Systems together with David Remy; Member of faculty council and doctoral degree board; involved in writing a proposal for DFG clusters of excellence Bionic Intelligence for Health and Stuttgart Center for Simulation Sciences as participating researcher; scientific representative for the planning of a new building for Cyber Valley; reviewer of the mobility program Global Glimpse for the faculty.

Max Planck Institute for Intelligent Systems, Robotic Materials Department
Leading subgroups on modeling and characterization of electrohydraulic HASEL actuators and on developing new materials systems for high-performance soft actuators; coordinated the set-up of the laboratories of the newly founded department; planned the renovations of the facilities of the department; responsible for planning the budget of department; representative of the department for the scientific advisory board; involved in planning new building for Cyber Valley; started and organized an institute-wide, weekly talk series and social event (Talk & Talk); department safety officer; evaluator for the International Max Planck Research School for Intelligent Systems, the Max Planck ETH Center for Learning Systems, and the MPI-IS grassroots funding program;

University of Colorado Boulder, Keplinger Research Group
Led subgroups on modeling and characterizing electrohydraulic HASEL actuators.

Harvard University, Suo Group
Led an industry collaboration with BASF on using thermoplastic polyurethanes in electroactive noise cancellation devices; was the lab safety officer for 2 years; organized regular social events for the School of Engineering and Applied Sciences; mentored one graduate student.

Harvard University, George M. Whitesides Group
Was lab safety officer for 3 years; organized regular social events for the Whitesides group and the Department of Chemistry and Chemical Biology.

Memberships in Professional associations

2023 – present	IEEE Robotics and Automation Society
2021 – present	European Society for Electromechanically Active Polymer Transducers & Artificial Muscles

Talks and Presentations

Invited Talks

[15]	DWI Leibniz-Institute for Interactive Materials, Interactive Materials Talks – Soft Robotics, Aachen, Germany, September 2026: Title TBD

[14] 2nd German Robotics Conference, Workshop *Soft Robotics: New Bodies For Future Robots*, Cologne, Germany, March 2026: Improving the performance of electrohydraulic actuators

[13] Society of Engineering Science Annual Technical Meeting (SES 2025), Atlanta, GA, USA, October 2025: Electrohydraulic artificial muscles for the next generation of lifelike robots

[12] IEEE RAS EMBS 10th International Conference on Biomedical Robotics and Biomechatronics (BioRob 2024), Workshop *Bioinspired and Biohybrid Soft Robots: Advanced Materials and Enabling Technologies*, Heidelberg, Germany, September 2024: HASEL artificial muscles for the next generation of lifelike robots

[11] 11th International Conference on Soft Transducers and Electromechanically Active Polymers, Bristol, UK, June 2023: Electromechanical Modeling of Electrohydraulic HASEL Actuators

[10] 2023 IEEE International Conference on Robotics and Automation (ICRA), Workshop *Soft Robotics: Fusing Function with Structure*, London, UK, June 2023: Bistable elements for the embodied control of fluid flow in soft robots

[9] IEEE International Conference on Soft Robotics (Robosoft) 2023, Workshop *Mechanical and Fluidic Control of Untethered Soft Robots*, Singapore, April 2023: Control of fluid-flow in soft robots with bistable elements

[8] AIRS in the AIR, Shenzhen Institute of Artificial Intelligence and Robotics, Online, September 2022, **Keynote talk:** Physics of Hydraulically Amplified Self-Healing Electrostatic Actuators

[7] EUROMECH Colloquium on Mechanics of Soft Active Polymers, Southampton, UK, August 2022: Electromechanical modeling of hydraulically amplified self-healing electrostatic actuators

[6] TU Dresden, Chair of Microsystems, Seminar, Germany, June 2022: Electromechanics of hydraulically amplified self-healing electrostatic actuators

[5] Intelligent Machines? – Self-organized Nonlinear Dynamics of Machines across Scales (Intema 2022), Dresden, Germany, June 2022: Quasistatic and dynamic behavior of electrohydraulic HASEL actuators

[4] IEEE International Conference on Soft Robotics (Robosoft) 2022, Workshop *New Directions for Simplified Control of Soft Robots*, Edinburgh, UK, April 2022: Soft Bistable Valves for Pressure-Based Feedback Control of Pneumatic Soft Robots

[3] Imperial College London and London Centre for Nanotechnology, Online, November 2021: Mechanisms of Electrohydraulic Actuation in HASEL actuators

[2] Queen Mary University of London, Engineering Seminar, Online, May 2021: Physics of Electrohydraulic Actuation in HASEL Actuators

[1] Step Anywhere, Online, March 2021: Hasel Artificial Muscles for a New Generation of Lifelike Robots

Conference Contributions

[5] EuroEAP, Online Forum, June 2021: Spider-inspired Electrohydraulic Soft-actuated Joints [Lightning talk & Poster presentation]

[4] SPIE Smart Structures/NDE, Electroactive Polymer Actuators and Devices (EAPAD) XXIII, Online forum, March 2021: Dynamics of Electrohydraulic HASEL Actuators [Oral presentation]

[3] Gordon Research Conference: Robotics, Ventura, CA, USA, January 2020: Fundamentals of the Electromechanics of HASEL Actuators [Poster presentation]

[2] 2019 SES Technical Meeting, St Louis, MO, USA, October 2019: How Inhomogeneous Zipping Increases the Force Output of Peano-HASEL Actuators [Oral presentation]

[1] SPIE Smart Structures/NDE, Electroactive Polymer Actuators and Devices (EAPAD) XVI, San Diego, CA, USA, March 2014: Durability of Dielectric Elastomer Actuators Made with Ionic Conductors [Oral presentation]

Patent

[1] Keplinger C. M., Mitchell S. K., Kellaris N. A., **Rothemund P.**, Composite Layering of Hydraulically Amplified Self-Healing Electrostatic Transducers. U.S. Patent No. 12,278,572

References

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Publication Overview

Citation record (Google Scholar): https://scholar.google.com/citations?user=O10opkEAAAAJ&hl=en&oi=ao

Journal Publications

[32] Joo H.-J., Fukushima T., Li X., Shagan Shomron A., Koh S. J. A., **Rothemund P.†**, Keplinger C†. Ultralight soft electrostatic actuators based on solid-liquid-gas architectures. *Nature Communications* **17**, 1929 (2026) (**†corresponding author**)

[31] Zhang S. L., Fukushima T., Kirkman S., Koh S. J. A., **Rothemund P.†**, Keplinger C†. A Method to Study and Enhance the Energy Efficiency of Soft Electrostatic Actuators. *Proceedings of the National Academy of Sciences of the United States of America* **6**, e2527676123 (2025) (**†corresponding author**)

[30] Xu Y., Zhang F., **Rothemund P.**, Keplinger C., Xu Z., Li J. Zheng Q., Zhu J. Soft reconfigurable logic gates with high-frequency electrical switching. *Science Advances* **11**, adx1509 (2025)

[29] Milana E., Della Santina C., Gorissen B., **Rothemund P.** Physical control: A new avenue to achieve intelligence in soft robotics. *Science Robotics* **10**, eadw7660 (2025)

[28] Sanchez-Tamayo N., Yoder Z., **Rothemund P.**, Ballardini G., Keplinger C., Kuchenbecker K. J. Cutaneous Electrohydraulic (CUTE) Wearable Devices for Pleasant Broad-Bandwidth Haptic Cues. *Advanced Science* **11**, 2402461 (2024)

[27] Yoder Z., Rumley E. H., Schmidt, I., **Rothemund P.**, Keplinger C. Hexagonal electrohydraulic modules for rapidly reconfigurable high-speed robots. *Science Robotics* **9**, adl3546 (2024)

[26] Bensefelt T., Jyoti Shakya, **Rothemund P.**, Lindström S. B., Piper A., Winkler T. E., Hajian A., Wagberg L., Keplinger C., Hamedi, M.M. Electrochemically controlled hydrogels with electrotunable permeability and uniaxial actuation. *Advanced Materials* **35**, 2303255 (2023)

[25] Bensefelt T., **Rothemund P.**, Lee P.S. Ultrafast, high-strain, and strong uniaxial hydrogel actuators from recyclable nanofibril networks. *Advanced Materials* **35**, 2300487 (2023)

[24] Rumley E. H.*, Preninger D.*, Shagan Shomron A., **Rothemund P.**, Hartmann F., Baumgartner M., Kellaris N., Stojanovic A., Yoder Z., Karrer B., Keplinger C., Kaltenbrunner M. Biodegradable Electrohydraulic Actuators for Sustainable Soft Robots. *Science Advances* **9**, eadf5551 (*equal contribution)

[23] **Rothemund P.**, Kim. Y., Heisser R. H., Zhao X., Shepherd R. F., Keplinger C. Shaping the future of robotics through materials innovation. *Nature Materials* **20**, 1582 (2021)

[22] Fowler H. E., **Rothemund P**., Keplinger C., White T. J. Liquid Crystal Elastomers with Enhanced Directional Actuation to Electric Fields. *Advanced Materials* **33**, 2103806 (2021)

[21] Kirkman S., **Rothemund P.**, Acome E., Keplinger C. Electromechanics of Planar HASEL Actuators. *Extreme Mechanics Letters* **48**, 101408 (2021)

[20] Kellaris N., **Rothemund P.**, Zeng Y., Mitchell S. K., Smith G. M., Jayaram, K., Keplinger C. Spider-inspired Electrohydraulic Actuators for Fast, Soft-Actuated Joints. *Advanced Science* **8**, 2100916 (2021)

[19] Li Y.*, Root S. E.*, Belding, L., Park J., Rawson J., Yoon H. J., Baghbanzadeh M., **Rothemund P.**, Whitesides G. M. Characterizing Chelation at Surfaces by Charge Tunneling. *Journal of the American Chemical Society* **143**, 5967 (2021) (*equal contribution)

[18] **Rothemund P.**, Kellaris N.*, Mitchell S. K.*, Acome, E.*, Keplinger C. HASEL Artificial Muscles for a New Generation of Lifelike Robots—Recent Progress and Future Opportunities. *Advanced Materials* **33**, 2003375 (2021) (*equal contribution)

[17] **Rothemund P.†**, Kirkman S., Keplinger C.† Dynamics of Electrohydraulic Soft Actuators. *Proceedings of the National Academy of Sciences of the United States of America* **117**, 16207 (2020) (**†corresponding author**)

[16] Wang X., Mitchell S. K., Rumley E. H., **Rothemund P.**, Keplinger C. High-Strain Peano-HASEL Actuators. *Advanced Functional Materials* **30**, 1908821 (2020)

[15] **Rothemund P.**, Kellaris N., Keplinger C. How Inhomogeneous Zipping Increases the Force Output of Peano-HASEL Actuators. *Extreme Mechanics Letters* 31, 100542 (2019)

[14] Luo K.*, **Rothemund P.***, Whitesides G. M., Suo Z. Soft Kink Valves. *Journal of the Mechanics and Physics of Solids* **131**, 230 (2019) (***equal contribution**)

[13] Preston D. J., Jiang H. J., Sanchez V., **Rothemund P.**, Rawson J., Nemitz M. P., Lee W.-K., Suo Z., Walsh C. J., Whitesides G. M. A Soft Ring Oscillator. *Science Robotics* **4**, eaaw5496 (2019)

[12] Kellaris N., Gopaluni Venkata V., **Rothemund P.**, Keplinger C. An Analytical Model for the Design of Peano-HASEL Actuators with Drastically Improved Performance. *Extreme Mechanics Letters* **29**, 100449 (2019)

[11] Preston D. J., **Rothemund P.**, Jiang H. J.*, Nemitz M. P.*, Rawson J., Suo Z., Whitesides G. M. Digital Logic for Soft Devices. *Proceedings of the National Academy of Sciences of the United States of America* **116**, 7750 (2019) (*equal contribution)

[10] Cafferty B. J.*, Campbell V. E.*, **Rothemund P.**, Preston D. J., Ainla A., Fulleringer N., Diaz A. C., Fuentes A. E., Sameoto D., Lewis J. A., Whitesides G. M. Fabricating 3D Structures by Combining 2D Printing and Relaxation of Strain. *Advanced Materials Technologies* **4**, 1800299 (2019) (*equal contribution)

[9] **Rothemund P.**, Morelle X. P., Jia K., Whitesides G. M., Suo Z. A Transparent Membrane for Active Noise Cancelation. *Advanced Functional Materials* **28**, 1800653 (2018)

[8] **Rothemund P.**, Ainla A., Belding L., Preston D. J., Kurihara S., Suo Z., Whitesides G. M. A Soft, Bistable Valve for Autonomous Control of Soft Actuators. *Science Robotics* **3**, eaar7986 (2018).

[7] Belding L., Baytekin B., Baytekin H. T., **Rothemund P.**, Verma M. S., Nemiroski A., Sameoto D., Grzybowski B. A., Whitesides G. M. Slit Tubes for Semisoft Pneumatic Actuators. *Advanced Materials* **30**, 1704446 (2018)

[6] **Rothemund P.**, Bowers C. M., Suo Z., Whitesides G. M. Influence of the Contact Area on the Current Density across Molecular Tunneling Junctions Measured with EGaIn Top-Electrodes. *Chemistry of Materials* **30**, 129 (2018)

[5] Baghbanzadeh M.*, Bowers C. M.*, Rappoport D., Zaba T., Yuan L., Kang K., Liao K.-C., Gonidec M., **Rothemund P.**, Cyganik P., Aspuru-Guzik A., Whitesides G. M. Anomalously Rapid Tunneling: Charge Transport across Self-Assembled Monolayers of Oligo(ethylene glycol). *Journal of the American Chemical Society* **139**, 7624 (2017) (*equal contribution)

[4] Hamedi M. M.*, Campbell V. E.*, **Rothemund P.**, Güder F., Christodouleas D. C., Bloch J.-F., Whitesides G. M. Electrically Activated Paper Actuators. *Advanced Functional Materials* **26**, 2446 (2016) (*equal contribution)

[3] Illeperuma W. R. K., **Rothemund P.**, Suo Z., Vlassak J. J. Fire-resistant Hydrogel-fabric Laminates: A Simple Concept that may Save Lives. *ACS Applied Materials & Interfaces* **8**, 2071 (2016)

[2] Keplinger C.*, Sun J.-Y.*, Foo C. C., **Rothemund P.**, Whitesides G. M., Suo Z. Stretchable, Transparent, Ionic Conductors. *Science* **341**, 984 (2013) (*equal contribution)

[1] Schmidt A., **Rothemund P.**, Mazza E. Multiaxial Deformation and Failure of Acrylic Elastomer Membranes. *Sensors and Actuators A: Physical* **174**, 133 (2012)

Monograph

[1] **Rothemund P.** Mechanics of Soft Actuators. *PhD Thesis*, Harvard University, Graduate School of Arts & Sciences (2018)