

## Lukas Michalek

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### Publications

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#### PUBLICATIONS

- **Localized Thermomechanical Measurements of Polymers and Blends with AFM-IR.** *Small (Weinheim an der Bergstrasse, Germany)*  
Lim, C. Y., Bao, Z., Michalek, L.  
2026: e14518
- **A guide for nanomechanical characterization of soft matter via AFM: From mode selection to data reporting.** *STAR protocols*  
Kim, E., Ramos Figueroa, A. L., Schrock, M., Zhang, E., Newcomb, C. J., Bao, Z., Michalek, L.  
2025; 6 (2): 103809
- **Biofunctionalized polymer semiconductors toward soft and stretchable transistor-based biosensors.** *Science advances*  
Zhao, C., Liu, Q., Chang, J. Y., Patil, A., Michalek, L., Wu, Y., Yuan, Y., Mow, R. K., Shi, Y., Yao, Y., Hsu, K. J., Zheng, Y., Bao, et al  
2026; 12 (23): eaec2641
- **Solution-state nanoconfined aggregation and microstructure evolution in blends of conjugated polymers and elastomers.** *Proceedings of the National Academy of Sciences of the United States of America*  
Peña-Alcántara, A. E., Ghasemi, M., Cheng, C., Chaney, T. P., Coffey, A. H., Ponte, E., Ji, X., Michalek, L., Wu, Y., Schrock, M., Ngaruka, G., Gala, M. L., Zhu, et al  
2026; 123 (18): e2516186123
- **Intrinsically stretchable complementary circuits based on direct photo-patternable polymer semiconductors** *NATURE ELECTRONICS*  
Liu, Q., Zheng, Y., Wu, H., Michalek, L., Ronchini, M., Mow, R. K., Wang, W., Park, H., Ji, X., Yu, Z., Yao, Z., Nishio, Y., Zhao, et al  
2026
- **Photolyzable Polymer Brushes: Subtractive 3D Structuring of Surfaces Using Water and Light.** *Angewandte Chemie (International ed. in English)*  
Kalmer, H., Sbordone, F., Do, P. T., Mundsinger, K., Kayas, H., Jones, R. T., Mendhi, J., Dargaville, T. R., Harkin, D. G., Michalek, L., Nelson, A., Frisch, H.  
2026: e2790800
- **Ultrasensitive soft vibration sensors based on atomically thin metal dichalcogenide ribbon networks.** *Science advances*  
Xu, C., Li, X., Michalek, L. F., Park, J., Kim, E., Zhang, Z., Unocic, R. R., Zhao, E. T., Hsu, W. C., Shi, B., Wu, S., Yang, Y., Harutyunyan, et al  
2026; 12 (12): eaeb6733
- **Field-Responsive Dynamic Monolayer Regulated Interphase for Enhanced Lithium Metal Batteries.** *Journal of the American Chemical Society*  
Zhang, E., Holoubek, J., Lyu, H., Li, Y., Florian, J., Shuchi, S. B., Lee, J. K., Michalek, L., Chen, T., Chen, Z., Choi, I. R., Guo, X., Mondonico, et al  
2026
- **Temperature-Controlled Phase Separation Behavior of Conjugated Polymer:Elastomer Blends of PffBT4T-2OD and SEBS** *ACS APPLIED ELECTRONIC MATERIALS*  
Pena-Alcantara, A. E., Nikzad, S., Ngaruka, G., Michalek, L., Bao, Z.  
2026
- **Stabilizing All-Solid-State Li-S Batteries by a Polysulfide-Repelling and Anode-Protecting Self-Segregated Trilayer Polymer Electrolyte.** *Journal of the American Chemical Society*  
Lyu, H., Gao, X., Michalek, L., Chen, T., Yu, W., Lim, C. Y., Florian, J., Mondonico, L., Zhang, W., Sarkar, S., Zhang, P., Shi, Y., Lin, et al  
2026

- **Polydopamine-Mediated Grafting of Cationic Polymer Brushes for Adsorption of Fluorinated Compounds.** *Chemistry (Weinheim an der Bergstrasse, Germany)*  
Morrissey, A. C., Sbordone, F., Pashley-Johnson, F., Micallef, A. S., van de Worp, B., Zaquen, N., Egodawatta, P., Delafresnaye, L., Michalek, L., Barner-Kowollik, C.  
2026: e03580
- **Skin-like drift-free biosensors with stretchable diode-connected organic field-effect transistors** *NATURE ELECTRONICS*  
Zhao, C., Park, J., Maula, D., Yuan, Y., Zhong, D., Wang, W., Liu, Q., Xu, C., Zheng, Y., Mow, R. K., Jiang, Y., Xu, C., Lyu, et al  
2025
- **Bioinspired Metal Binding Interfaces for Continuous Metal Removal from Water.** *ACS applied materials & interfaces*  
Morrissey, A. C., Sbordone, F., Sprake, W., Michalek, L., Ghijzen, D., van de Worp, B., Zaquen, N., Delafresnaye, L., Egodawatta, P., Barner-Kowollik, C.  
2025
- **Electrochemical formation of bis(fluorosulfonyl)imide-derived solid-electrolyte interphase at Li-metal potential.** *Nature chemistry*  
Yu, W., Lin, K. Y., Boyle, D. T., Tang, M. T., Cui, Y., Chen, Y., Yu, Z., Xu, R., Lin, Y., Feng, G., Huang, Z., Michalek, L., Li, et al  
2024
- **A Transparent, Patternable, and Stretchable Conducting Polymer Solid Electrode for Dielectric Elastomer Actuators** *ADVANCED FUNCTIONAL MATERIALS*  
Kim, E., Lai, J., Michalek, L., Wang, W., Xu, C., Lyu, H., Yu, W., Park, H., Tomo, Y., Root, S. E., Lee, B., Park, J., Park, et al  
2024
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Jeong, S., Yoon, H., Michalek, L. F., Kim, G., Kim, J., Seo, J., Kim, D., Park, H., Lee, B., Hong, Y.  
2024; 15 (1): 7209
- **Shape-memory-assisted self-healing of macroscopic punctures via high-energy-density periodic dynamic polymers with tunable actuation temperature** *MATTER*  
Shi, Y., Cooper, C. B., Nogusa, T., Lai, J., Lyu, H., Khatib, M., Xu, C., Michalek, L., Bao, Z.  
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- **Tuning polymer-backbone coplanarity and conformational order to achieve high-performance printed all-polymer solar cells.** *Nature communications*  
Wu, Y., Yuan, Y., Sorbelli, D., Cheng, C., Michalek, L., Cheng, H. W., Jindal, V., Zhang, S., LeCroy, G., Gomez, E. D., Milner, S. T., Salleo, A., Galli, et al  
2024; 15 (1): 2170
- **Tuning the Mobility of Indacenodithiophene-Based Conjugated Polymers via Coplanar Backbone Engineering** *CHEMISTRY OF MATERIALS*  
Ji, X., Cheng, H., Schuster, N. J., LeCroy, G. S., Zhang, S., Wu, Y., Michalek, L., Nguyen, B. T., Chiong, J. A., Schrock, M., Tomo, Y., Rech, J., Salleo, et al  
2023; 36 (1): 256-265
- **Sequence-dependent self-assembly of supramolecular nanofibers in periodic dynamic block copolymers** *JOURNAL OF MATERIALS CHEMISTRY A*  
Phong, J. K., Cooper, C. B., Michalek, L., Lin, Y., Nishio, Y., Shi, Y., Gong, H., Vigil, J. A., Ilavsky, J., Kuzmenko, I., Bao, Z.  
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- **Degradable semiconducting polymers without long-range order for on-demand degradation of transient electronics** *JOURNAL OF MATERIALS CHEMISTRY C*  
Chiong, J. A., Michalek, L., Pena-Alcantara, A. E., Ji, X., Schuster, N. J., Bao, Z.  
2023
- **Tunable 1D and 2D Polyacrylonitrile Nanosheet Superstructures.** *ACS nano*  
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- **Genetically targeted chemical assembly of polymers specifically localized extracellularly to surface membranes of living neurons.** *Science advances*

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2023; 9 (32): eadi1870

- **Environmentally stable and stretchable polymer electronics enabled by surface-tethered nanostructured molecular-level protection.** *Nature nanotechnology*  
Zheng, Y., Michalek, L., Liu, Q., Wu, Y., Kim, H., Sayavong, P., Yu, W., Zhong, D., Zhao, C., Yu, Z., Chiong, J. A., Gong, H., Ji, et al  
2023
- **Shear-aligned large-area organic semiconductor crystals through extended pi-pi interaction** *JOURNAL OF MATERIALS CHEMISTRY C*  
Zhang, S., Talnack, F., Jousselein-Oba, T., Bhat, V., Wu, Y., Lei, Y., Tomo, Y., Gong, H., Michalek, L., Zhong, D., Wu, C., Yassar, A., Mannsfeld, et al  
2023
- **Autonomous alignment and healing in multilayer soft electronics using immiscible dynamic polymers.** *Science (New York, N.Y.)*  
Cooper, C. B., Root, S. E., Michalek, L., Wu, S., Lai, J. C., Khatib, M., Oyakhire, S. T., Zhao, R., Qin, J., Bao, Z.  
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- **Effect of Molecular Weight on the Morphology of a Polymer Semiconductor-Thermoplastic Elastomer Blend** *ADVANCED ELECTRONIC MATERIALS*  
Pena-Alcantara, A., Nikzad, S., Michalek, L., Prine, N., Wang, Y., Gong, H., Ponte, E., Schneider, S., Wu, Y., Root, S. E., He, M., Tok, J., Gu, et al  
2023
- **Realizing Intrinsically Stretchable Semiconducting Polymer Films by Nontoxic Additives** *ACS MATERIALS LETTERS*  
Cheng, H., Zhang, S., Michalek, L., Ji, X., Luo, S., Cooper, C. B., Gong, H., Nikzad, S., Chiong, J. A., Wu, Y., Zheng, Y., Liu, Q., Zhong, et al  
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- **Photostationary State in Dynamic Covalent Networks** *ACS MACRO LETTERS*  
Chambers, L. C., Barner-Kowollik, C., Barner, L., Michalek, L., Frisch, H.  
2022; 11 (4): 532-536
- **A versatile and straightforward process to turn plastics into antibacterial materials** *POLYMER CHEMISTRY*  
Hadiouch, S., Maresca, M., Gimes, D., Machado, G., Maurel-Pantel, A., Frik, S., Saunier, J., Deniset-Besseau, A., Yagoubi, N., Michalek, L., Barner-Kowollik, C., Guillauneuf, Y., Lefay, et al  
2021; 13 (1): 69-79
- **A Versatile Light-Triggered Radical-Releasing Surface Coating Technology** *ADVANCED MATERIALS TECHNOLOGIES*  
Boase, N. R. B., Michalek, L., Hooker, J. P., Fairfull-Smith, K. E.  
2022; 7 (4)
- **Light-Gated Control of Conformational Changes in Polymer Brushes** *ADVANCED MATERIALS TECHNOLOGIES*  
Bialas, S., Krappitz, T., Walden, S. L., Kalayci, K., Kodura, D., Frisch, H., MacLeod, J. M., Nelson, A., Michalek, L., Barner-Kowollik, C.  
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