

2025-2026 CNF Research Accomplishments

A SELECTION OF 2025 CNF-RESEARCH-RELATED PATENTS, PRESENTATIONS, AND PUBLICATIONS

“1D and 2D Chiral Conjugated Polymers”; Yu Zhong, the HORIZONS 2025 conference, Hanoi, Vietnam, 08/2025 (2025).”

“30dB signal enhancement by integrated weak value amplification”; Yuhua Mei, Meiting Song, Andrew N. Jordan, and Jaime Cardenas, In CLEO 2025, page JPS10046. Optica Publishing Group, (2025).”

“A D-Band 24-dBm MMIC Amplifier by Innovative Power Combining of GaN HEMTs in a SiC SIW”; Lei Li; Tianze Li; Weifeng Wu; Patrick Fay; James C. M. Hwang, IEEE Transactions on Microwave Theory and Techniques, Volume 73, Issue 8, doi: 10.1109/TMTT.2025.3537605 <https://ieeexplore.ieee.org/document/10879268> (2025).”

“A Microfluidic Rheometer for Tumor Mechanics and Invasion Studies”; Young Joon Suh, Manli Liu, Bangguo Zhu, Mrinal Pandey, Brian Cheung, Jaemin Kim, Nikolaos Bouklas, Chris Roh, Jeffrey E Segall, Chung-Yuen Hui, and Mingming Wu, 2025 CNF Annual Meeting Ithaca, NY, November 18 (2025).”

“A microfluidic rheometer for tumor mechanics and invasion studies”; Young Joon Suh, Manli Liu, Bangguo Zhu, Mrinal Pandey, Brian C. H. Cheung, Jaemin Kim, Nikolaos Bouklas, Chris Roh, Jeffrey E. Segall, Chung-Yuen Hui, and Mingming Wu, Lab on a Chip, Issue 22: 6018-6032 <https://pubs.rsc.org/en/content/articlelanding/2025/lc/d5lc00504c#divCitation> (2025).”

“A novel association between breast cancer cell plasticity and the nuclear envelope protein lamin A”; Sarah Henretta, Karisa Bockley, Anushka Dongre, Jan Lammerding, Gordon Research Conference on Physical Science of Cancer. Pomona, CA (February 3-4) (2025).”

“A Scalable Ultra-Low Power Temperature Gradient Sensor Using Pulse Coupled Oscillators”; K. Shim, P. Chaudhari, and A. Apsel, 2025 IEEE Sensors 2025 Conference at Vancouver, Canada, pp. 1-4, doi: 10.1109/SENSOR59705.2025.11330868 (2025).”

“A small cavity for detecting sound-induced flow”; Junpeng Lai; Zihan Liu; Morteza Karimi; Mahdi Farahikia; Weili Cui; Johar Pourghader; Sara Aghazadeh; Changhong Ke; Ronald Miles, The Journal of the Acoustical Society of America, Volume 157, Issue 1 <https://pubs.aip.org/asa/jasa/article/157/1/29/3329466/A-small-cavity-for-detecting-sound-induced-flow> (2025).”

“A subnanolitre tetherless optoelectronic microsystem for chronic neural recording in awake mice”; Sunwoo Lee, Shahaboddin Ghajari, Sanaz Sadeghi, Yumin Zheng, Hind Zahr, Alejandro J. Cortese, Wenchao Gu, Kibaek Choe, Aaron Mok, Melanie Wallace, Rui Jiao, Chunyan Wu, Jesse C. Werth, Weiru Fan, Praneeth Mogalipuvvu, Ju Uhn Park, Shitong Zhao, Conrad Smart, Thomas A. Cleland, Melissa R. Warden, Jan Lammerding, Tianyu Wang, Jesse H. Goldberg, Paul L. McEuen, Chris Xu & Alysha C. Molnar, Nature Electronics volume 8, pages 1259–1271 <https://www.nature.com/articles/s41928-025-01484-1> (2025).”

“A validated lumped-element model for bioinspired acoustic flow sensing toward the performance limit”; Wei Sun, Wanyin Zheng, Xiangyu Wei, David A. Czaplewski, Ronald N. Miles, Jian Zhou*, arXiv:2511.10830 <https://arxiv.org/abs/2511.10830> (2025).”

“Achieving 0.05 Ω -mm contact resistance in non-alloyed Ti/Au ohmics to β -Ga₂O₃ by removing surface carbon”; Naomi Pieczulewski; Kathleen T. Smith Corresponding Author; Corey M. Efaw; Arjan Singh; Cameron A. Gorsak; Joshua T. Buontempo; Jesse Wensel; Kathy Azizie; Katie Gann; Michael O. Thompson; Darrell G. Schlom; Farhan Rana; Hari P. Nair; Steven M. Hues; Elton Graugnard; Paul H. Davis; Debdeep Jena; Huili Grace Xing; David A. Muller, APL Mater. 13, 061122 <https://pubs.aip.org/apl/apm/article/13/6/061122/3350513/Achieving-0-05-mm-contact-resistance-in-non> (2025).”

“Adaptive surface sensing enables mammalian sperm navigation in complex environments”; Ali Karimi, Xieergai Jiang and Alireza Abbaspourrad, bioRxiv 2025.11.16.688464 <https://www.biorxiv.org/content/10.1101/2025.11.16.688464v1.abstract> (2025).”

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“An integrated microwave neural network for broadband computation and communication”; Bala Govind, Maxwell G. Anderson, Fan O. Wu, Peter L. McMahon & Alyssa Apsel, Nature Electronics 8, 738-750, <https://www.nature.com/articles/s41928-025-01422-1> (2025).”

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- “Anisotropic spin stripe domains in bilayer La₃Ni₂O₇”; Naman K. Gupta, Rantong Gong, Yi Wu, Mingu Kang, Christopher T. Parzyck, Benjamin Z. Gregory, Noah Costa, Ronny Sutarto, Suchismita Sarker, Andrej Singer, Darrell G. Schlom, Kyle M. Shen & David G. Hawthorn, *Nature Communications* volume 16, Article number: 6560 <https://www.nature.com/articles/s41467-025-61653-w> (2025).”
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- “Atomic-scale crystal defects for quantum information science and characterization of materials”; Gregory Fuchs, American Conference on Crystal Growth and Epitaxy, Stephenson, WA (2025).”
- “A-type lamins anchor emerin at the inner nuclear membrane via two independent binding sites”; Jacob Odell, Kristen Nedza, Jan Lammerding, *bioRxiv* [Preprint]. 2025 Sep 2:2025.09.01.673543. doi: 10.1101/2025.09.01.673543. <https://pubmed.ncbi.nlm.nih.gov/40950172/> (2025).”
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- “Chromatin buffers torsional stress during transcription”; Jin Qian, Lucyna Lubkowska, Shuming Zhang, Chuang Tan, Yifeng Hong, Xiaomeng Jia, Robert M Fulbright, James T Inman, Taryn M Kay, Joshua Jeong, Glenn Hauk, Deanna Gotte, James M Berger, Mikhail Kashlev, Michelle D Wang, *Science* 2025 Dec 18:eadv0134. doi: 10.1126/science.adv0134. <https://pubmed.ncbi.nlm.nih.gov/41411413/> (2025).”
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