

Nongjian (NJ) Tao

Director

The Biodesign Institute, Bioelectronics and Biosensors

Professor

Ira A. Fulton School of Engineering, Electrical Engineering

Contact

Tao Lab: <http://www.public.asu.edu/~ntao1/>

Email: njtao@asu.edu

Biography

NJ Tao joined the ASU faculty as a professor of electrical engineering and an affiliated professor of chemistry and biochemistry in August 2001. Before that, he worked as an assistant and associate professor at Florida International University. He has published 180 refereed journal articles and book chapters, which have been cited over 7000 times (h-index: 50). He has given over 180 invited talks and seminars worldwide.

Research Interests

- Chemical and biological sensors,
- molecular and nano electronics,
- nanostructured materials and devices,
- and electrochemical nanofabrications.

SELECTED PUBLICATIONS

1. X. Shan, U. Patel, S. Wang, R. Iglesias, N. J. Tao, "Imaging Local Electrochemical Current Via Surface Plasmon Resonance", *Science*, 327, 1363-1366(2010).
2. Alvaro Díaz Aguilar, Erica S. Forzani, Mathew Leright, Francis Tsow, Avi Cagan Rodrigo A. Iglesias, Larry A. Nagahara, Islamshah Amlani, Raymond Tsui and N. J. Tao, "A hybrid nanosensor for TNT vapor detection", *NanoLett.*, 10, 380-384(2010).
3. Ismael Díez-Pérez, Joshua Hihath, Youngu Lee, Luping Yu, Lyudmyla Adamska, Mortko A. Kozhushner, Ivan I. Oleynik and N.J. Tao, "Rectification and Stability of a Single Molecular Diode with Controlled Orientation", *Nature Chem.* 1, 635-641(2009).
4. J.L. Xia, F. Chen, J.H. Li and N.J. Tao, "Measurement of Quantum Capacitance of Graphene", *Nature Nanotech.*, 4, 505-509(2009).
5. F. Chen, Q. Qing, J.L. Xia, J.H. Li and N.J. Tao, "Electrochemical gate-controlled charge transport in graphene in ionic liquid and aqueous solution", *J. Am. Soc.*, 131, 9908-9909(2009).
6. N.J. Tao, "Push the right button", *Nature Chem.*, 1, 108(2009).

7. F. Tsow, E.S. Forzani, A. Rai, R. Tsui, S. Mastroianni, C. Knobbe, A. J. Gandolfi, and N.J. Tao, "A Wearable & Wireless Sensor System for Real-time Monitoring of Environmental Volatile Organic Toxicants", *IEEE Sensors*, 9(1734-1740)2009.
8. F. Chen, J.L. Xia, D.K. Ferry and N.J. Tao, "Dielectric screening enhanced performance in graphene FET", *NanoLett*, 6, 2571-2574(2009).
9. F. Chen, J.L. Xia and N.J. Tao, "Ionic Screening of Charged-Impurity Scattering in Graphene", *NanoLett*, 9, 1621-1625(2009).
10. E.S. Forzani, D.L. Lu, M.J. Leright, A.D. Aguilar, F. Tsow, R.A. Iglesias, Q. Zhang, J. Lu, J.H. Li, N.J. Tao, "A Hybrid Electrochemical-Colorimetric Sensing Platform for Detection of Explosives" *J. Am. Chem. Soc.*, 131, 1390-1391 (2009).
11. F. Chen and N.J. Tao, "Electron transport in single molecules: from benzene to graphene", *Acc. Chem. Res.*, 42, 429-438(2009).
12. J.L. Xia, Isma, NJ Tao, "Electron Transport in Single Molecules Measured by a Distance-Modulation Assisted Break Junction Method", *NanoLett.*, 8, 1960-1964 (2008).
13. J Hihath, C.R. Arroyo, G. Rubio-Bollinger, N.J. Tao and N. Agrait, "Study of Electron-Phonon Interactions in a Single Molecule Covalently Connected to Two Electrodes", *NanoLett.*, 8, 1673-1678(2008).
14. N.J. Tao, "Switching made simple", *News & Views, Nature Nanotech.*, 2, 677-677(2007)
15. Z.F. Huang, F. Chen, R. D'Agosta, P. A. Bennett, M. Di Ventra and N.J. Tao, "Local-Heating in Single Molecule Junctions: Evidence of Electron-Phonon and Electron-Electron Interactions", *Nature Nanotech.*, 2, 698-703(2007).
16. Xiulan Li, Joshua Hihath, Fang Chen, Takuya Masuda, Ling Zang and N.J. Tao, "Thermally Activated Electron Transport in Single Redox molecules", *J. Am. Chem. Soc.*, 129, 11535-11542(2007).
17. Zhifeng Huang, Feng Chen, Peter A. Bennett and Nongjian Tao: "Single Molecule Junctions Formed via Au-Thiol Contact: Stability and Breakdown Mechanism", *J. Am. Chem. Soc.*, 129, 13225-13231(2007).
18. F. Chen, J. Hihath, Z.F. Huang, X.L. Li and N.J. Tao, "Measurement of single molecule conductance", *Annual Review of Physical Chemistry*, 58, 535-564(2007).
19. F. Chen, X.L. Li, J. Hihath, Z.F. Huang and N.J. Tao, "Effect of Anchoring Groups in Single Molecule Conductance A Comparative Study of Thiol-, Amine- and Carboxylic Acid-Terminated Molecules", *J. Am. Chem. Soc.*, 128, 15874-15881 (2006).
20. J. Tian, B. Liu, X.L. Li, Z.L. Yang, B. Ren, S.T. Wu, N.J. Tao and Z.Q. Tian, "Study of molecular junctions with combined surface-enhanced Raman and mechanically controllable 1break junction method", *J. Am. Chem. Soc.*, 128, 14748-14749(2006).
21. N.J. Tao, "Electron transport in molecular junctions", *Nature Nanotech.*, 1, 173-181(2006).
22. Z.F. Huang, B.Q. Xu, Y.C. Chen, M. Di Ventra and N.J. Tao, "Current Induced Local heating in Single Molecule Junctions", *NanoLett.*, 6, 1240-1244(2006).

23. Nguyen, Ly and N.J. Tao, "Scalable dope-coded biosensing particles for protein detection". *Applied Physics Letters*, 88, 043901/1-043901/3(2006).
24. X.L. Li, J. He, J. Hihath, B.Q. Xu, S.M. Lindsay and N.J. Tao, "Conductance of Single Alkanedithiols: Conduction Mechanism and Effect of Molecule-Electrode Contacts". *J. Am. Chem. Soc.*, 128, 2135-2141(2006).
25. J. Hihath, B.Q. Xu, P.M. Zhang, and N.J. Tao, "Study of Nucleotide Polymorphisms via Electrical Conductance Measurements", *Proc. Natl Acad. Sci.*, 102, 16979-16983(2005).
26. B.Q. Xu, X.L. Li, X.Y. Xiao, H. Sakaguchi and N.J. Tao "Electromechanical and Conductance Switching Properties of Single Oligothiophene Molecules", *NanoLett.*, 5, 1491-1495(2005).
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28. B.Q. Xu, X.Y. Xiao, X.M. Yang, L. Zangand N.J. Tao, "Large Gate Current Modulation in a Room Temperature Single Molecule Transistor", *J. Am. Chem. Soc.*, 127, 2386-2387(2005).
29. E. S. Forzani, H.Q. Zhang, W. Chen and N.J. Tao, "Detection of heavy metal ions in drinking water using a high-resolution differential Surface Plasmon Resonance Sensor", *Environmental Science & Technology*, 39, 1257-1262(2005).
30. X. Xiao and N. J. Tao, "Metal Ion Binding Induced Changes in Single Peptide Conductance", *Angewandte. Chem., Intl.*, 43, 6148-6152(2004).
31. E.S. Forzani, H.Q. Zhang, L.A. Nagahara, I.Amlani, R. Tsui, N.J. Tao "Conducting Polymer Nanojunction Sensor for Glucose Detection", *NanoLett.*, 4, 1785-1788(2004).
32. B.Q. Xu, P.M. Zhang, X.L. Li and N. J. Tao, "Direct Conductance Measurement Of Single DNA Molecules In Aqueous Solution", *NanoLett.*, 4, 1105-1108(2004).
33. X. Xiao, B.Q. Xu and N. J. Tao, "Conductance Titration of Single Peptide Molecules", *J. Am. Chem. Soc.*, 126, 5370-5371(2004).
34. X. Xiao, B.Q. Xu and N. J. Tao, "Measurement of Single Molecule Conductance: Benzenedithiol and Benzenedimethanethiol.", *NanoLett.*, 4, 267-271(2004).
35. B.Q. Xu, X. Xiao and N. J. Tao, "Measurement of Single Molecule Electromechanical Properties", *J. Am. Chem. Soc.*, 125, 16164-16165(2003).
36. B.Q. Xu, and N.J. Tao, "Measurement of Single Molecule Conductance by Repeated Formation of Molecular Junctions", *Science*, 301, 1221-1223(2003).
37. S. Boussaad, N.J. Tao, "A Polymer Wire Chemical Sensor using Microfabricated Tuning Fork", *Nano Lett.* 3, 1173-1176(2003).
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