



## **Dr. Vitaly Podzorov**

Rutgers University  
Physics Department  
P.O. Box 849  
Piscataway, NJ 08854  
E-mail: [podzorov@physics.rutgers.edu](mailto:podzorov@physics.rutgers.edu)  
<http://www.physics.rutgers.edu/~podzorov/index.php>  
Tel: (732) 445-5500 ext 2528  
Fax: (732) 445-4343



### **POSITIONS**

- 07/2016-present: *Professor-I*, Physics Dept., Rutgers University, New Brunswick, NJ, USA.
- 01/2012-06/2016: *Assoc. Professor*, Physics Dept., Rutgers University, New Brunswick, NJ, USA.
- 09/2007-12/2011: *Assist. Professor*, Physics Dept., Rutgers University, New Brunswick, NJ, USA.
- 11/2002-08/2007: *Postdoc*, Physics Dept., Rutgers University, New Brunswick, NJ, USA.

### **EDUCATION**

- 1997–2002: **Ph.D. in Physics**, Rutgers University, NJ, USA. Low temperature magneto-transport properties of strongly correlated multiferroics oxides.
- 1994–1995: **M.S. in Physics**, Moscow Institute of Physics and Technology (MIPT), Russia. Raman and photoluminescence spectroscopy of nanostructures semiconductors. *Graduated with distinction.*
- 1989-1993: **B.S. in Physics**, Moscow Institute of Physics and Technology (MIPT), Russia.

### **FUNDING**

- **2020, iMR Rutgers**, (internal Rutgers support), “Hybrid materials and devices with novel functionalities governed by quantum phenomena”, **with other co-PIs from Rutgers**, \$50,000 (03/01/2020-02/28/2021).
- **2018, NSF ECCS, EPMD 1806363** “Advanced organic and hybrid electronic devices for high-resolution Hall effect and photocurrent spectroscopy”, **single PI**, \$360,000 (09/01/2018-08/31/2022, with no-cost ext.).
- **2015, NSF DMR, Cond. Matt. Phys.** “Charge transport and trap-healing effect at semiconductor/polymer heterointerfaces”, \$340,535 (08/01/2015-07/31/2018).
- **2011-2014, ACS PRF** “Organic single-crystal solar cells”, **single PI**, \$100,000.
- **2010-2013, DOE, Chem. of Mater.** “Basic surface chemistry and physics of carbon-based electronic materials modified by molecular monolayers”, **single PI**, \$399,000.
- **2008-2012, NSF ECCS 0822036** “Molecular self-assembly at the surface of organic semiconductors”, **single PI**, \$330,000.
- **2009-2013, NSF DMR 0843985** “**CAREER**: Charge and energy transport in highly ordered small-molecule organic semiconductors”, **single PI**, \$535,000.
- **2004-2007, NSF DMR 0405208** “Field-effect in layered organic and inorganic semiconductors”, **co-PI**, \$390,000.
- **2004-2007, NSF ECCS 0437932** “Air-gap transistor stamps: enabling technology for fabrication of novel devices of organic electronics and probing fundamental limits of their performance”, **co-PI**, \$435,000.

## **PROFESSIONAL ACTIVITIES & AFFILIATIONS**

- **Co-Organizer**, APS March Meeting 2022, Focused Session on Fundamental Electronic Processes and the Role of Interfaces in Organic Semiconductors.
- **Co-Organizer**, European MRS (E-MRS), Lille, France, May 11-15, 2015, Symposium Q "Organic semiconducting single crystals: from fundamentals to advanced devices".
- **Co-Organizer**, APS March Meeting 2014, Focused Session on Organic Electronics and Photonics.
- **Guest Editor**, MRS Bulletin Themed Issue: "Organic single-crystal optoelectronics", Jan. 2013.
- **Co-Organizer**, Spring and Fall MRS meetings 2010-2012, Symposia on Organic Electronics.
- **Co-Organizer**, Alpine-2010 Workshop on Physics of Organic Semiconductors, Zurich, Switzerland.
- **Co-Organizer**, APS March Meeting 2009, Focused Session on Organic Electronics.
- **Co-Organizer**, ICAM-2006 meeting on *Transport in Single-Crystal Organic Semiconductors*, Baltimore, MD, USA: <http://www.physics.rutgers.edu/ICAM-EPOS/>
- **Invited organizer** for the 2004 Electronic Materials Conference: <http://www.tms.org/Meetings/Specialty/EMC04/EMC04.html>
- **Reviewer** for *Physical Review Letters (PRL)*, *Science*, *Science Advances*, *Nature*, *Nature Materials*, *Nature Nanotechnology*, *Nature Chemistry*, *Nature Scientific Reports*, *Nature Communications*, *PNAS*, *Materials Today*, *Organic Electronics*, *Advanced Materials*, *Physical Review B (PRB)*, *Journal of the American Chemical Society (JACS)*, *Applied Physics Letters (APL)*, *Journal of Applied Physics (JAP)*
- **Member** of *American Physical Society* and *Materials Research Society*

## **MEDIA COVERAGE**

1. *Rutgers Today*, Bending an Organic Semiconductor Can Boost Electrical Flow, by Todd Bates (2019): <https://news.rutgers.edu/bending-organic-semiconductor-can-boost-electrical-flow/20191203>.
2. *Materials Today*, Electricity flows faster in slightly bent organic semiconductor, (2019): <https://www.materialstoday.com/electronic-properties/news/electricity-flows-bent-organic-semiconductor>.
3. *Materials Today*, New electric field effect turns on perovskites, by Cordelia Sealy (2019): <https://doi.org/10.1016/j.mattod.2019.03.003>
4. *Rutgers Today*, Light from an exotic crystal semiconductor could lead to better solar cells, by Todd Bates (2019): [https://www.eurekalert.org/pub\\_releases/2019-03/ru-lfa030519.php](https://www.eurekalert.org/pub_releases/2019-03/ru-lfa030519.php)
5. *The Daily Targum*, Physics professor makes developments in flexible electronics, by Andrew Rodriguez (2013): <http://www.dailytargum.com/article/2013/02/physics-professors-make-developments-in-flexible-electronics>
6. Eureka! Kitchen Gadget Inspires Scientist to Make More Effective Plastic Electronics, by Carl Blesch (2011): <https://news.rutgers.edu/research-news/eureka-kitchen-gadget-inspires-scientist-make-more-effective-plastic-electronics/20120127>
7. Rutgers Discovery paves way to efficient solar cells, by Carl Blesch (2010): [https://www.eurekalert.org/pub\\_releases/2010-10/ru-rdp100810.php](https://www.eurekalert.org/pub_releases/2010-10/ru-rdp100810.php).
8. J. Mullins "Shedding Light on Organic Transistors", *IEEE Spectrum Magazine*, (08.05.2005).
9. P. Weiss "Inside Plastic Transistors: Crystal-clear window opens on hidden flows", *Science News* **166**, 51-52 (July 24, 2004).
10. A. Hellemans "Organic Transistors Speed Up", *IEEE Spectrum Magazine*, Dec. 03 (2003).

## **PUBLICATIONS**

**Google Scholar:** citations 14225, H-index 49 (as of 5/26/2023).

**ISI Web of Sci.:** citations 10541, aver. citations per item 121.16, H-index 41 (as of 5/26/2023).

82. V. Bruevich, L. Kasaei, S. Rangan, H. Hijazi, Z. Zhang, T. Emge, E. Y. Andrei, R. A. Bartynski, L. C. Feldman, V. Podzorov, "Intrinsic (Trap-Free) Transistors Based on Epitaxial Single-Crystal Perovskites". *Adv. Mater.* **34**, 2205055 (2022).

81. M. Chen, B. Peng, R. A. Sporea, V. Podzorov, P. K. L. Chan, "The Origin of Low Contact Resistance in Monolayer Organic Field-Effect Transistors with van der Waals Electrodes", **Small Sci.** **2**, 2100115 (2022).
80. A. K. Grebenko, G. Drozdov, Y. G. Gladush, I. Ostanin, S. S. Zhukov, A. V. Melentyev, E. M. Khabushev, A. P. Tsapenko, D. V. Krasnikov, B. Afinogenov, A. G. Temiryazev, V. V. Dremov, T. Dumitrică, M. Li, H. Hijazi, V. Podzorov, L. C. Feldman, A. G. Nasibulin, "Local ultra-densification of single-walled carbon nanotube films: Experiment and mesoscopic modeling", **Carbon** **196**, 979-987 (2022).
79. A. K. Grebenko, D. V. Krasnikov, A. V. Bubis, V. S. Stolyarov, D. V. Vyalikh, A. A. Makarova, A. Fedorov, A. Aitkulova, A. A. Alekseeva, E. Gilshtein, Z. Bedran, A. N. Shmakov, L. Alyabyeva, R. N. Mozhchil, A. M. Ionov, B. P. Gorshunov, K. Laasonen, V. Podzorov, A. G. Nasibulin, "High-Quality Graphene Using Boudouard Reaction", **Adv. Sci.** **9**, 2200217 (2022).
78. N. Vagenas, V. Podzorov, P. Kounavis, "Modulated-photocurrent spectroscopy of single-crystal organic semiconductor rubrene with pristine and trap-dominated surfaces", **Phys. Rev. Mater.** **5**, 063801 (2021).
77. W. Ki, X. Hei, H. T. Yi, W. Liu, S. J. Teat, M. Li, Y. Fang, V. Podzorov, E. Garfunkel, J. Li, "Two-Dimensional Copper Iodide-Based Inorganic–Organic Hybrid Semiconductors: Synthesis, Structures, and Optical and Transport Properties", **Chem. Mater.** **33**, 5317-5325 (2021).
76. A. K. Grebenko, A. Bubis, K. Motovilov, V. Dremov, E. Korostylev, I. Kindiak, F. S. Fedorov, S. Luchkin, Y. Zhuikova, A. Trofimenko, G. Filkov, G. Sviridov, A. Ivanov, J. T. Dull, R. Mozhchil, A. Ionov, V. Varlamov, B. P. Rand, V. Podzorov, A. G. Nasibulin, "Green Lithography for Delicate Materials", **Adv. Funct. Mater.** **31**, 2101533 (2021).
75. Z. Liang, H. H. Choi, X. Luo, T. Liu, A. Abtahi, U. S. Ramasamy, J. A. Hitron, J. L. Hempel, A. M. Boehm, A. Ansary, D. R. Strachan, J. Mei, C. Risko, V. Podzorov, K. R. Graham, "*n*-Type Charge Transport in Heavily *p*-Doped Polymers", **Nature Mater.**, DOI:10.1038/s41563-020-00859-3, (2021).
74. V. Bruevich, H. H. Choi, V. Podzorov, "The Photo-Hall Effect in High-Mobility Organic Semiconductors", **Adv. Funct. Mater.**, DOI:10.1002/adfm.202006178, (2021).
73. H. H. Choi, H. T. Yi, J. Tsurumi, J. J. Kim, A. L. Briseno, S. Watanabe, J. Takeya, K. Cho, V. Podzorov, "A Large Anisotropic Enhancement of the Charge Carrier Mobility of Flexible Organic Transistors with Strain: A Hall Effect and Raman Study", **Adv. Science**, 1901824 (2020).
72. H. H. Choi, A. F. Paterson, M. A. Fusella, J. Panidi, O. Solomeshch, N. Tessler, M. Heeney, K. Cho, T. D. Anthopoulos, B. P. Rand, V. Podzorov, "Hall Effect in Polycrystalline Organic Semiconductors: The Effect of Grain Boundaries", **Adv. Funct. Mater.**, 1903617 (2019).
71. H. T. Yi, S. Rangan, B. Tang, C. D. Frisbie, R. A. Bartynski, Y. N. Gartstein, V. Podzorov, "Electric-field effect on photoluminescence of lead-halide perovskites", **Materials Today** <https://doi.org/10.1016/j.mattod.2019.01.003> (2019).
70. H. T. Yi, P. Irkhin, P. P. Joshi, Y. N. Gartstein, X.-Y. Zhu, V. Podzorov, "Experimental Demonstration of Correlated Flux Scaling in Photoconductivity and Photoluminescence of Lead-Halide Perovskites", **Phys. Rev. Applied** **10**, 054016 DOI: 10.1103/PhysRevApplied.10.054016 (2018).
69. H. H. Choi, Y. I. Rodionov, A. F. Paterson, J. Panidi, D. Saranin, N. Kharlamov, S. I. Didenko, T. D. Anthopoulos, K. Cho and V. Podzorov, "Accurate Extraction of Charge Carrier Mobility in 4-Probe Field-Effect Transistors", **Adv. Funct. Mater.**, DOI: 10.1002/adfm.201707105 (2018).
68. H. H. Choi, K. Cho, C. D. Frisbie, H. Sirringhaus and V. Podzorov, "Critical assessment of charge mobility extraction in FETs", **Nature Mater.** **17**, 2-7 DOI: 10.1038/nmat5035 (2018).
67. H. H. Choi, H. Najafov, N. Kharlamov, D. V. Kuznetsov, S. I. Didenko, K. Cho, A. L. Briseno, and V. Podzorov, "Polarization-Dependent Photoinduced Bias-Stress Effect in Single-Crystal Organic Field-Effect Transistors", **ACS Appl. Mater. & Interfaces** **9**, 34153-34161 DOI: 10.1021/acsami.7b11134 (2017).

66. M. A. Fusella, S. Yang, K. Abbasi, H. H. Choi, Z. Yao, V. Podzorov, A. Avishai, B. P. Rand, "Use of an Underlayer for Large Area Crystallization of Rubrene Thin Films", **Chem. Mater.** **29**, 6666-6673, DOI: 10.1021/acs.chemmater.7b01143 (2017).
65. R. Fujimoto, S. Watanabe, Y. Yamashita, J. Tsurumi, H. Matsui, T. Kushida, C. Mitsui, H. T. Yi, V. Podzorov, J. Takeya, "Control of molecular doping in conjugated polymers by thermal Annealing", **Org. Electron.** **47**, 139-146 (2017).
64. L. Carman, H. P. Martinez, L. Voss, S. Hunter, P. Beck, N. Zaitseva, P. Irkhin, H. H. Choi, V. Podzorov, S. Payne, "Solution-grown rubrene crystals as radiation detecting devices", **IEEE Transactions on Nuclear Science** **64**, 781-788, DOI: 10.1109/TNS.2017.2652139 (2017).
63. Y. Chen, H. T. Yi, X. Wu, R. Haroldson, Y. N. Gartstein, Y. I. Rodionov, K. S. Tikhonov, A. Zakhidov, X.-Y. Zhu, V. Podzorov, "Extended carrier lifetimes and diffusion lengths in hybrid perovskites revealed by steady-state Hall effect and photoconductivity measurements", **Nature Comm.** **7**, DOI: 10.1038/ncomms12253 (2016).
62. H. T. Yi, X. Wu, X.-Y. Zhu, V. Podzorov, "Intrinsic charge transport across phase transitions in hybrid organo-inorganic perovskites", **Adv. Mater.** **28**, 6509-6514 DOI: 10.1002/adma.201600011 (2016).
61. H. T. Yi, Y. N. Gartstein, V. Podzorov, "Charge carrier coherence and Hall effect in organic semiconductors", **Sci. Reports** **6**, DOI: 10.1038/srep23650 (2016).
60. Y. Chen, H. T. Yi, V. Podzorov, "High-Resolution ac Measurements of the Hall Effect in Organic Field-Effect Transistors", **Phys. Rev. Applied** **5**, 034008 (2016).
59. B. Fraboni, A. Fraleoni-Morgera, Y. Geerts, A. Morpurgo, V. Podzorov, "Organic Single Crystals: An Essential Step to New Physics and Higher Performances of Optoelectronic Devices", **Adv. Funct. Mater.** **26**, 2229-2232 (2016).
58. H. T. Yi, Z. Chen, A. Facchetti and V. Podzorov, "Solution-processed crystalline n-type organic transistors stable against electrical stress and photo-oxidation", **Adv. Funct. Mater.** **26**, 2365-2370 DOI: 10.1002/adfm.201502423 (2016).
57. X.-Y. Zhu, V. Podzorov, "Charge carriers in hybrid organic-inorganic lead halide perovskites might be protected as large polarons", **J. Phys. Chem. Lett.**, **6** (23), 4758 (2015).
56. A. K. Hailey, S.-Y. Wang, Y. Chen, M. M. Payne, J. E. Anthony, V. Podzorov, Y.-L. Loo, "Quantifying the energy barriers and elucidating the charge transport mechanisms across interspherulite boundaries in solution-processed organic semiconductor thin films", **Adv. Funct. Mater.** **25**, 5662-5668 DOI: 10.1002/adfm.201501666 (2015).
55. P. Irkhin, H. Najafov, V. Podzorov, "Steady-state photoconductivity and multi-particle interactions in rubrene single crystals", **Sci. Reports** **5**, 15323; doi: 10.1038/srep15323 (2015).
54. B. Lee, Y. Chen, A. Cook, A. Zakhidov, V. Podzorov, "Stable doping of carbon nanotubes via molecular self assembly", **Appl. Phys. Lett.** **116**, 144503 (2014).
53. H. T. Yi, B. Gao, W. Xie, S-W. Cheong, V. Podzorov, "Tuning the metal-insulator transition and magnetism in SrRuO<sub>3</sub> by ionic gating", **Sci. Reports** **4**, 6604, DOI 10.1038/srep06604 (2014).
52. D. Mastrogiovanni, J. Mayer, A. S. Wan, A. Vishnyakov, A. V. Niemark, V. Podzorov, L. C. Feldman, E. Garfunkel, "Oxygen incorporation in rubrene single crystals", **Sci. Reports** **2**, 4753, DOI: 10.1038/srep04753 (2014).
51. B. Lee, Y. Chen, H. T. Yi, D. Fu, K. Czelen, H. Najafov and V. Podzorov, "Trap healing and ultra-low noise Hall effect at the surface of organic semiconductors", **Nature Mater.** **12**, 1125-1129 (2013).
50. V. Podzorov, "Conjugated polymers: long and winding polymeric roads", **Nature Mater.** **12**, 947-948 (2013).
49. V. Podzorov, Guest Editor, MRS Bulletin themed Issue: "Organic Single Crystals: Addressing fundamentals of organic electronics" introductory paper, **MRS Bulletin** **38**, 15-24 (Jan., 2013).
48. H. T. Yi, M. M. Payne, J. E. Anthony and V. Podzorov, "Ultra-flexible solution-processed OFETs", **Nature Comm.**, DOI: 10.1038/ncomms2263 (2012).

47. Y. Chen, B. Lee, H. T. Yi, S. S. Lee, M. M. Payne, S. Pola, C.-H. Kuo, Y.-L. Loo, J. E. Anthony, Y. T. Tao and V. Podzorov, "Perspective Article: Dynamic character of charge transport parameters in disordered organic semiconductor field-effect transistors", *Phys. Chem. Chem. Phys.* **14**, 14142–14151 (2012).
46. Y. Chen and V. Podzorov, "Bias stress effect in air-gap organic field-effect transistors", *Adv. Mater.* **24**, 2679 (2012).
45. H. T. Yi, Y. Chen, K. Czelen and V. Podzorov, "Vacuum lamination approach to fabrication of high-performance single-crystal OFETs", *Adv. Mater.* **23**, 5807 (2011).
44. Y. Chen, B. Lee, D. Fu and V. Podzorov, "The origin of the 650 nm photo-luminescence band in rubrene", *Adv. Mater.* **23**, 5370 (2011).
43. H. Najafov, D. Mastrogiovanni, E. Garfunkel, L. C. Feldman and V. Podzorov, "Photon assisted oxygen diffusion and oxygen related traps in organic semiconductors", *Adv. Mater.* **23**, 981 (2011).
42. D. J. Ellison, B. Lee, V. Podzorov and C. D. Frisbie, "Surface Potential Mapping of SAM-Functionalized Organic Semiconductors by Kelvin Probe Force Microscopy", *Adv. Mater.* **23**, 502 (2011).
41. H. Najafov, B. Lee, Q. Zhou, L. C. Feldman and V. Podzorov, "Observation of long-range exciton diffusion in highly ordered organic semiconductors", *Nature Mater.* **9**, 938-943 (2010).
40. V. Podzorov, " $\pi$ -electron systems: building molecules for a function", *Nature Mater.* **9**, 616 (2010).
39. B. Lee, A. Wan, D. Mastrogiovanni, J. E. Anthony, E. Garfunkel and V. Podzorov, "Origin of the bias stress instability in organic field-effect transistors", *Phys. Rev. B* **82**, 085302 (2010).
38. B. Lee, Y. Chen, F. Duerr, D. Mastrogiovanni, E. Garfunkel, E. Y. Andrei and V. Podzorov, "Modification of electronic properties of graphene with self-assembled monolayers", *Nano Lett.* **10**, 2427-2432 (2010).
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35. H. Najafov, B. Lyu, I. Biaggio, and V. Podzorov, "Two mechanisms of exciton dissociation in rubrene single crystals", *Appl. Phys. Lett.* **96**, 183302 (2010).
34. B. Lee, T.-J. Choi, S.-W. Cheong and V. Podzorov, "Nanoscale Conducting Channels at the Surface of Organic Semiconductors Formed by Decoration of Molecular Steps with Self-Assembled Molecules", *Adv. Funct. Mater.* **19**, 3726 (2009).
33. C.-Y. Kao, B. Lee, L. S. Wielunski, M. Heeney, I. McCulloch, E. Garfunkel, L. C. Feldman and V. Podzorov, "Doping of conjugated polythiophenes with alkyl silanes", *Adv. Funct. Mater.* **19**, 1906 (2009).
32. M. F. Calhoun, J. Sanchez, D. Olaya, M. E. Gershenson and V. Podzorov, "Electronic functionalization of the surface of organic semiconductors with self-assembly monolayers", *Nature Mater.* **7**, 84 (2008).
31. S. Subramanian, S. K. Park, S. R. Parkin, V. Podzorov, T. N. Jackson and J. E. Anthony, "Chromophore Fluorination Enhances Crystallization and Stability of Soluble Anthradithiophene Semiconductors", *JACS* **130**, 2706 (2008).
30. M. M. Qazilbash, Z. Q. Li, V. Podzorov, M. Brehm, F. Keilmann, B. G. Chae, H. T. Kim, and D. N. Basov, "Electrostatic modification of infrared response in gated structures based on VO<sub>2</sub>", *Appl. Phys. Lett.* **92**, 241906 (2008).

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24. V. Podzorov and M. E. Gershenson, “Photo-induced charge transfer across the interface between organic molecular crystals and polymers”, ***Phys. Rev. Lett.*** **95**, 016602-1 (2005).
23. V. Podzorov *et al.*, “Intrinsic charge-carrier transport on the surface of organic semiconductors”, ***Phys. Rev. Lett.*** **93**, 086602 (2004).
22. V. C. Sundar, J. Zaumseil, V. Podzorov, E. Menard, R. L. Willett, M. E. Gershenson and J. A. Rogers “Mobility Anisotropy in Rubrene Single Crystals Probed by Monolithic Elastomeric Stamps”, ***Science*** **303**, 1644 (2004).
21. H. Najafov, I. Biaggio, V. Podzorov, M. F. Calhoun, M. E. Gershenson, “Primary photoexcitations and the origin of photo-current in rubrene single crystals”, ***Phys. Rev. Lett.*** **96**, 056604 (2006);
20. M. E. Gershenson, V. Podzorov, A. F. Morpurgo, “*Colloquium*: Electronic Transport in Single-Crystal Organic Transistors”, ***invited review, Rev. Mod. Phys.*** **78**, 973 (2006).
19. R. W. I. de Boer, M. E. Gershenson, A. F. Morpurgo, V. Podzorov, ***invited review*** “Organic single-crystal field-effect transistors”, ***Phys. Stat. Solidi***, **201**, 1302 (2004).
18. V. Podzorov, “Charge transport and optical properties of organic single-crystal field-effect transistors”, ***book chapter*** in *Organic Field-Effect Transistors*, Ed. Z. Bao, (Taylor & Francis, 2007).
17. R. W. I. de Boer, M. E. Gershenson, A. F. Morpurgo, and V. Podzorov, “Organic single-crystal field-effect transistors”, ***book chapter*** in *Physics of Organic Semiconductors*, Ed. W. Brütting, pp. 393-432 (Wiley-VCH, 2005).
16. O. Ostroverkhova *et al.*, “Ultrafast carrier dynamics in pentacene, functionalized pentacene, tetracene and rubrene single crystals”, ***Appl. Phys. Lett.*** **88**, 162101 (2006).
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9. V. Podzorov, V. M. Pudalov and M. E. Gershenson “Field Effect Transistors on Rubrene Single Crystals with Parylene Gate Insulator” ***Appl. Phys. Lett.*** **82**, 1739 (2003).

8. V. Podzorov, B. G. Kim, V. Kiryukhin, M. E. Gershenson and S-W. Cheong “Martensitic accommodation strain and the metal-insulator transition in manganites” *Phys. Rev. B* **64**, 140406(R) (2001).
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### SELECTED PRESENTATIONS

- **Invited talk:** “The intrinsic (trap-free) transistors based on perovskite single crystals with self-passivated surfaces”, **SPIE-2022**, San Diego, CA, USA, August 21-25, 2022;
- **Invited talk:** “Unusual photoconductivity and photoluminescence scaling in organic semiconductors and lead-halide perovskites: the effects of excitons vs free charge carriers”, **ACS Spring-2021**, held online due to COVID-19, April 5-16, 2021;
- **Invited seminar:** “Photophysics of organic semiconductor and perovskite crystals”, Department of Materials Science, Nanyang Technological University, Singapore, July 19, 2019;
- **Invited seminar:** “Exciting photo-physical properties of lead-halide perovskite and organic semiconductor single crystals”, Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP) and Institut für Angewandte Physik, Technische Universität Dresden, Germany, May 29, 2019;
- **Invited talk:** “Correlated photoexcitation flux scaling of photoconductivity and photoluminescence of high-performance organic semiconductors and hybrid perovskites”, **Material Innovation Research Center (MIRC) forum 2019**, University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8561, Japan, March 22, 2019;
- **Invited seminar:** “Fascinating photophysics of functional organic semiconductor surfaces and interfaces”, SkolTech, Moscow, Russia, Sept. 20, 2018;
- **Invited talk:** “Avoiding artifacts and errors in characterization of organic field-effect transistors”, **International Fall School on Organic Electronics, IFSOE-2018**, Moscow region, Russia, Sept. 16-20, 2018;
- **Invited talk:** “The intrinsic mobility-strain relationship in single-crystalline organic semiconductors”, **SPIE-2018**, San Diego, CA, Aug. 19-24, 2018;
- **Invited talk:** “Correlated photoexcitation flux scaling of photoconductivity and photoluminescence in organic semiconductors and lead-halide perovskites”, **SPIE-2018**, San Diego, CA, Aug. 19-24, 2018;
- **Invited colloquium:** “Fascinating photophysics of high-performance organic semiconductors for flexible optoelectronics”, Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP) and Institut für Angewandte Physik, Technische Universität Dresden, Germany, July 10, 2018;



- **Invited talk:** “Addressing the intrinsic transport properties of high-performance organic semiconductors via Hall effect measurements”, **NANOTECHNOLOGY ISFOE-2018**, Thessaloniki, Greece, July 3-5, 2018;
- **Invited seminar:** “Fascinating photophysics of high-performance organic semiconductors”, Institute of Spectroscopy of the Russian Academy of Science ISAN, Troitsk, Russia, June 14, 2017;
- **Invited talk:** “Photophysics of high-mobility organic semiconductor devices”, **13 Int. Conf. on Org. Electron. (ICOE-2017)**, St. Petersburg, Russia, June 4-8, 2017;
- **Invited talk:** “High-mobility organic semiconductors: devices and high-precision transport measurements”, **APS March Meeting 2017**, New Orleans, LA, March 13-17, 2017;
- **Invited talk:** “High resolution *ac*-Hall effect measurements and charge carrier coherence in organic semiconductors”, International Workshop on Field-Effect Transistors and Functional Interfaces, **FET-2016**, Ruttgers Bay Lake Lodge, Minnesota, Sept. 7-11, 2016;
- **Invited talk:** “Carrier coherence and high-sensitivity Hall effect measurements in organic semiconductors”, **SPIE-2016**, San Diego, CA, Aug. 29-31, 2016;
- **Invited talk:** “Novel Hall effect measurement technique for OFETs with drastically improved sensitivity”, **Spring MRS 2016**, Phoenix, AZ, March 28 - April 1, 2016;
- **Invited talk:** “Charge carrier mobility in organic semiconductors and high-resolution Hall effect measurements”, **Fall MRS 2015**, Boston, MA, Nov. 30 - Dec. 4, 2015;
- **Seminar:** “Fascinating photophysics of functional organic semiconductor surfaces and interfaces”, Physics Dept., Johns Hopkins University, Baltimore, MD, April 22, 2015;
- **Invited talk:** “Steady-state photoconductivity and multi-particle interactions in rubrene single crystals”, **Spring MRS 2015**, San Francisco, CA, April 6-10, 2015;
- **Invited seminar:** “Fundamentals of intrinsic charge and exciton transport in organic semiconductors”, Dept. of Materials Science and Engineering, KAUST, Saudi Arabia, Nov. 20, 2014;
- **Invited seminar:** “Charge transport, trap healing and photophysics of high-mobility organic semiconductors”, Physics Dept., University of Kentucky, Lexington, KY, Nov 11, 2014;
- **Invited talk:** “Novel optical and electronic phenomena at fascinating functional van der Waals surfaces and interfaces”, International Workshop on Field-Effect Transistors and Functional Interfaces, **FET-2014**, Kashiwa, Tokyo, Japan, Oct. 17-21, 2014;
- **Invited talk:** “Fundamentals of charge carrier transport, mobility measurements and device physics of highly-ordered organic semiconductors(single-crystal OFETs)”, **International Fall School on Organic Electronics, IFSOE-2014**, Moscow region, Russia, Sept. 21-26, 2014;
- **Invited talk:** “Photophysics of highly ordered organic semiconductors”, **SPIE-2014**, San Diego, CA, Aug. 18-20, 2014;
- **Invited seminar:** “Rubrene single crystals and high-performance OFETs”, Lawrence Livermore National Laboratory, Livermore, CA, Aug. 11, 2014;
- **Invited talk:** “Organic single-crystal devices: intrinsic physics of organic semiconductors”, **NANO-2014**, Moscow, Russia, July 13-18, 2014;
- **Invited talk:** “Exciton fission, fusion and long-range triplet diffusion in molecular crystals”, **Excited State Processes ESP-2014**, Santa Fe, NM, June 9-13, 2014;
- **Invited talk:** “Trap healing and ultra low-noise Hall effect measurements in organic semiconductors”, **SPIE-2013**, San Diego, CA, Aug. 25-29, 2013;
- **Invited talk:** “Intrinsic transport and photo-physical properties of high-mobility organic single crystals”, **Spring MRS 2013**, San Francisco, CA, April 1-5, 2013;
- **Invited talk:** “Intrinsic transport and photo-physical properties of high-mobility organic single crystals”, **APS March Meeting 2013**, Baltimore, MD, March 18-22, 2013;



- **Tutorial lecture:** “Organic Single Crystal Electronics – 101”, Symp. P, **Fall MRS-2012**, Boston, MA, Nov. 25, 2012;
- **Invited talk:** “Intrinsic mechanisms of stability and parameter drift in organic semiconductor devices”, **OFET-2012**, Princeton, NJ, Oct. 27-31, 2012;
- **Invited talk:** “Bias stress instability in single crystal and thin film transistors”, **SPIE-2012**, San-Diego, CA, August 12-16, 2012;
- **Invited talk:** “Charge and energy transport in molecular single crystals”, **Int. Conf. on Synthetic Metals-2012**, Atlanta, GA, July 8-13, 2012;
- **Invited talk:** “Vacuum lamination approach to fabrication of high-performance OFETs”, **Spring MRS-2012**, San Francisco, CA, April 9-13, 2012;
- **Invited talk:** “Charge and energy transport in molecular single crystals”, **ACS-2012**, San-Diego, CA, March 23 - 30, 2012;
- **Invited talk:** “Surface nature of photoconductivity and long-range exciton diffusion in rubrene”, **4-th International symposium on atomically controlled fabrication technologies, Osaka University**, Osaka, Japan, Oct. 30 – Nov. 3, 2011;
- **Invited talk:** “Long-range exciton diffusion in highly ordered organic semiconductors”, **Spring MRS-2011**, San-Francisco, CA, April 25 - 29, 2011;
- **Invited talk:** “Rubrene single crystals as a platform for fundamental studies of charge transport and excitonic physics in organic semiconductors”, ACS-IEEE-MRS, **Organic Microelectronics and Optoelectronics Workshop VI, OMOW-2011**, San-Francisco, CA, July 18 - 20, 2011;
- **Invited talk:** “Fundamental interaction of oxygen with organic semiconductors: novel spectroscopic detection techniques and effects on opto-electronic properties”, International Conference on Materials for Advanced Tech. (**ICMAT 2011**), **Symp. FF**, Singapore, June 26 - July 1, 2011;
- **Invited talk:** “Exciton dynamics in crystalline organic semiconductors”, International Conference on Materials for Advanced Tech. (**ICMAT 2011**), **Symp. R**, Singapore, June 26 - July 1, 2011;
- **Invited talk:** “Origin of the bias stress instability in single-crystal organic field-effect transistors”, Alpine Workshop on The Physics of Organic Transistors, *Le Diablerets, Switzerland*, May 6-10, 2010;
- **Invited seminar:** *University of Utah, Salt Lake City*, Department of Physics: “Intrinsic charge transport in organic semiconductors doped electrostatically and chemically”, 12/02/2009.
- **Invited seminar:** *University of Massachusetts Amherst (UMass)*, Department of Polymer Science and Engineering: “Modification of electronic properties of organic semiconductors by electrostatic and chemical doping”, 10/23/2009.
- **Invited seminar:** *Princeton U., NJ*, Dept. of Electrical Engineering: “Nanoscale modification of organic semiconductors with self-assembled monolayers”, 10/05/2009.
- **Seminar:** *Rutgers University, LSM seminar*: “Nanoscale modification of organic semiconductors with self-assembled monolayers: an update”, 09/10/2009.
- **Invited seminar:** *Academia Sinica, Taipei and Hsinchu, Taiwan*: “Electronic and optical properties of pristine organic field-effect transistors”, 08/18/2009.
- **Invited talk:** *Workshop on new phenomena in pi-interfaces*, University of Tokyo, Kashiwa, Japan. “Self-assembled monolayer on organic semiconductors: growth, characterization and transport properties”, 08/14/2009.
- **Invited seminar:** *U. of Michigan, Ann Arbor*, Dept. of Materials Science and Engineering: “Surfaces and interfaces of pristine organic semiconductors and corresponding devices”, 10/24-25/2008.
- **Invited talk:** *Gordon Research Conference*, Mount Holyoke, CT, “Molecular self assembly at the surface of organic semiconductors”, 07/20-25/2008.

- **Invited seminar:** *MIT*, Boston, Dept. of Electrical Engineering: “Intrinsic charge carrier transport and optical properties of single-crystal organic field-effect transistors”, 05/16/2008.
- **Invited talk:** “Functionalization of the surface of organic semiconductors with self-assembled monolayers”, Alpine Workshop on The Physics of Organic Transistors, *Zurich, Switzerland*, Dec. 14, 2007;
- **Invited seminar:** “Functionalization of the surface of organic semiconductors with self-assembled monolayers”, Dept. of Electrical Engineering, *Chinese University of Hong Kong*, Dec. 5, 2007;
- **Invited talk:** “Nanoscale surface modification of organic semiconductors: surface functionalization and transport measurements”, *2007 SPIE Annual Conference*, San Diego, CA, 26-30 August, 2007;
- **Invited seminar:** “Intrinsic transport and optical properties of novel Organic Semiconductor Devices”, *Institute of Chemistry, Academia Sinica*, Taipei, Taiwan, 26<sup>th</sup> July, 2007;
- **Invited talk:** “Nanoscale modification of the surface of organic semiconductors: novel tools for surface functionalization”, *Organic Microelectronics Workshop*, Seattle, WA, 8-11 July, 2007;
- **Invited talk:** “Recent advances in single-crystal OFETs”, *European Materials Research Society*, Strasbourg, France, May 28<sup>th</sup> – June 1<sup>st</sup>, 2007.
- **Invited seminar:** “Charge carrier transport and optical properties of single-crystal OFETs”, *Nanyang Technological University*, Singapore, May 15<sup>th</sup>, 2007;
- **Invited talk:** “Charge carrier transport and optical properties of single-crystal organic field-effect transistors”, *Philips*, Eindhoven, the Netherlands, 19-22 June, 2006.
- **Invited seminar:** “Single-crystal Organic Field-Effect Transistors”, Dept. of Materials Science and Engineering, *University of Washington*, Seattle, WA, May 5, 2006;
- **Invited seminar:** “Transport and Optical Properties of single-crystal Organic Field-Effect Transistors”, Dept. of Materials Research, *Norfolk State University*, Norfolk, VA, April 7, 2006;
- **Invited talk:** “Novel photo-induced phenomena at organic-dielectric interfaces in OFETs”, ICAM workshop on *Transport in Single-Crystal Organic Semiconductors*, *American Physical Society (APS) March Meeting*, Baltimore, MD, March, 2006;
- **Invited colloquium:** “Electronic Properties of single crystal Organic Field-Effect Transistors”, Dept. of Applied Physics, *Stanford University*, Stanford, CA, Feb. 6, 2006;
- **Invited talk:** “Transport and Optical Properties of single-crystal Organic Field-Effect Transistors”, *Bell Labs*, Lucent Technologies, Murray Hill, NJ, Dec. 1<sup>st</sup>, 2005;
- **Invited talk:** “Transport and Photo-Physical Properties of Field-Effect Conduction Channel in Organic Semiconductors” *2005 SPIE Annual Conference*, San Diego, CA, July 31- August 4, 2005.
- **Invited seminar:** “Charge Transport in Organic Field-Effect Transistors”, Dept. of Physics, *U. of Illinois, Urbana Champaign (UIUC)*, Nov. 19, 2004.
- **Invited seminar:**, *Princeton University*, Dept. of Electrical Engineering “Charge Transport in Organic Field-Effect Transistors”, Dec. 1st, 2004.
- **Invited colloquium:** *Rutgers University*, Dept. of Physics, “Overview of Recent Advances in Organic Electronics with an Emphasis on the Charge Transport in Organic Field-Effect Transistors”, Dec. 06, 2004.
- **Invited talk:** “Charge Transport in Organic Field-Effect Transistors”, *American Physical Society (APS) March Meeting*, Los Angeles, CA, March 2005;
- **Invited talk:** “Intrinsic Charge Carrier Transport on the Surface of Organic Semiconductors” *2004 Electronic materials Conference*, University of Notre Dame, Notre Dame, Indiana, June 23-25, 2004.
- **Invited talk:** “Charge Carrier Transport in the Single-crystal Organic Field-Effect Transistors”, *Agranovich Workshop*, *University of Texas at Dallas*, Richardson, TX, January 21-23, 2004.

- “High Mobility Ambipolar Field-Effect Transistors Based on Transition-Metal Dichalcogenides”, Fpi6 conference, Cornell University, Ithaca, NY, June 14-18, 2004.
- “High Performance Single-Crystal Organic Field-Effect Transistors”, Fpi6 conference, Cornell University, Ithaca, NY, June 14-18, 2004.
- “Martensitic accommodation strain and the metal-insulator transition in manganites”, APS March Meeting, Indianapolis, IN, March 2002;
- **Invited talk:** “ $1/f$  Noise measurements in low- $T_C$  CMR manganites”, Fall MRS, Boston, MA, Nov. 1999.