

Bryan VanSaders

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ACADEMIC APPOINTMENTS

Drexel University	Assistant Professor	Physics	9/23-Present
University of Chicago	Postdoctoral Fellow	Physics	10/19-8/23

EDUCATION

Ph.D.	University of Michigan	Materials Science and Engineering	2019
M.A.	University of California San Diego	Materials Science and Engineering	2015
B.A.	Rutgers University	Materials Science and Engineering	2012

SELECTED PUBLICATIONS

1. **Bryan VanSaders**, Vincenzo Vitelli, "Informational Active Matter," arXiv:2302.07402, Feb 2023, Available: <https://arxiv.org/abs/2302.07402>
2. Wu, Brady, **Bryan VanSaders**, Melody X. Lim, and Heinrich M. Jaeger. "Hydrodynamic coupling melts acoustically levitated crystalline rafts." Proceedings of the National Academy of Sciences 120, no. 29 (2023): e2301625120.
3. Lim, Melody X., **Bryan VanSaders**, Anton Souslov, and Heinrich M. Jaeger. "Mechanical Properties of Acoustically Levitated Granular Rafts." Physical Review X 12, no. 2 (2022): 021017.
4. Braverman, Lara, Colin Scheibner, **Bryan VanSaders**, and Vincenzo Vitelli, "Topological Defects in Solids with Odd Elasticity," Phys. Rev. Lett., vol. 127, no. 26, p. 268001, Dec 2021, doi:10.1103/PhysRevLett.127.268001
5. Kao, Peng-Kai, **Bryan VanSaders**, Sharon C. Glotzer, and Michael J. Solomon, "Accelerated annealing of colloidal crystal monolayers by means of cyclically applied electric fields," Sci Rep, vol. 11, no. 1, p.11042, May 2021, doi: 10.1038/s41598-021-90310-7.
6. **VanSaders, Bryan**, Sharon C. Glotzer. "Sculpting crystals one burgers vector at a time: towards colloidal lattice robot swarms." Proceedings of the National Academy of Sciences, 118, no 3 (Jan 19 2021): e2017377118 doi:10.1073/pnas.2017377118

7. **VanSaders, Bryan**, Sharon C. Glotzer. "Pinning dislocations in colloidal crystals with active particles that seek stacking faults." *Soft Matter* 16, no 17 (May 6 2020): 4182. doi:10.1039/C9SM02514F
8. Liu, Tianyu, **Bryan VanSaders**, Sharon C. Glotzer, Michael J. Solomon. "Effect of defective microstructure and film thickness on the reflective structural color of self-assembled colloidal crystals." *ACS Applied Materials & Interfaces* 12, no 8 (February 26 2020): 9842 doi:10.1021/acsami.9b22913
9. Kao, Peng-Kai, **Bryan VanSaders**, Michael D. Durkin, Sharon C. Glotzer, Michael J. Solomon. "Anisotropy effects on the kinetics of colloidal crystallization and melting: comparison of spheres and ellipsoids." *Soft Matter* 15, no 37 (September 4 2019): 7479 doi:10.1039/C9SM00887J
10. **VanSaders, Bryan**, Sharon C. Glotzer. "Designing active particles for colloidal microstructure manipulation via strain field alchemy." *Soft Matter* 15, no 30 (July 18 2019): 6086. doi:10.1039/C9SM00896A
11. **VanSaders, Bryan**, Julia Dshemuchadse, and Sharon C. Glotzer. "Strain fields in repulsive colloidal crystals." *Physical Review Materials* 2, no. 6 (June 22, 2018): 063604. doi:10.1103/PhysRevMaterials.2.063604

ADDITIONAL PUBLICATIONS

1. Shen, Hao, Dylan Lu, **Bryan VanSaders**, Jimmy J. Kan, Hongxing Xu, Eric E. Fullerton, and Zhaowei Liu. "Anomalously weak scattering in metal-semiconductor multilayer hyperbolic metamaterials." *Physical Review X* 5, no. 2 (May 29, 2015): 21021. doi:10.1103/PhysRevX.5.021021
2. Kim, Tae Kyoung, **Bryan VanSaders**, Jaeyun Moon, Taewoo Kim, Chin-Hung Liu, Jirapon Khamwannah, Dongwon Chun, Duyoung Choi, Alireza Kargar, Renkun Chen, Zhaowei Liu, Sungho Jin. "Tandem structured spectrally selective coating layer of copper oxide nanowires combined with cobalt oxide nanoparticles." *Nano Energy* 11 (January 2015): 247–59. doi:10.1016/j.nanoen.2014.10.018
3. Kim, Tae Kyoung, Jaeyun Moon, **Bryan VanSaders**, Dongwon Chun, Calvin J. Gardner, Jae-Young Jung, Gang Wang, Renkun Chen, Zhaowei Liu, Yu Qiao, Sungho Jin. "Si boride-coated Si nanoparticles with improved thermal oxidation resistance." *Nano Energy* 9 (October 2014): 32–40. doi:10.1016/j.nanoen.2014.06.021
4. Moon, Jaeyun, Tae Kyoung Kim, **Bryan VanSaders**, Chulmin Choi, Zhaowei Liu, Sungho Jin, and Renkun Chen. "Black oxide nanoparticles as durable solar absorbing material for high-temperature concentrating solar power system." *Solar Energy Materials and Solar Cells* 134 (March 2015): 417–24. doi:10.1016/j.solmat.2014.12.004
5. Moon, Jaeyun, Dylan Lu, **Bryan VanSaders**, Tae Kyoung Kim, Seong Deok Kong, Sungho Jin, Renkun Chen, and Zhaowei Liu. "High performance multi-scaled

nanostructured spectrally selective coating for concentrating solar power.” *Nano Energy* 8 (September 2014): 238–46. doi:10.1016/j.nanoen.2014.06.016

6. Whalen, Terence, **Bryan VanSaders**, Cekdar Vakifahmetoglu, Asad Mughal, Eugene Zlotnikov, Seung-Beom Cho, and Richard E. Riman. “Solvothermal synthesis of acmite conversion coatings on steel.” *Journal of the American Ceramic Society* 96, no. 11 (November 1, 2013): 3656–61. doi:10.1111/jace.12594
7. **VanSaders, Bryan**, Lara Al-Baroudi, Mei Chee Tan, and Richard E. Riman. “Rare-earth doped particles with tunable infrared emissions for biomedical imaging.” *Optical Materials Express* 3, no. 5 (May 1, 2013): 566–73. doi:10.1364/OME.3.000566

PATENTS

1. Jin, Sungho, Renkun Chen, Zhaowei Liu, Jaeyun Moon, Tae Kyoung Kim, and **Bryan VanSaders**. "Solar energy absorbing coatings and methods of fabrication." United States US20170073530A1, filed March 13, 2015, and issued March 16, 2017. <https://patents.google.com/patent/US20170073530A1/en>.

PRESENTATIONS

1. **Bryan VanSaders**, Vincenzo Vitelli, “Fluid intelligence: activity from learning and forgetting”, American Physical Society March Meeting, Chicago, IL, 3/22
2. **Bryan VanSaders**, Melody X Lim, Brady Wu, Tali Khain, Heinrich M Jaeger, “Acoustic Probes of Soft Condensed Matter Systems”, Invited, American Physical Society March Meeting, Chicago, IL, 3/22
3. **Bryan VanSaders**, Sharon C. Glotzer, “Reconfigurable Colloidal Assemblies Via Active Matter Coupled to Defects”, American Institute of Chemical Engineers Annual Meeting, Boston, MA, 11/21
4. **Bryan VanSaders**, Sharon C. Glotzer, “Adaptive Mechanical Properties of Colloidal Crystals Via Active Interstitials”, American Institute of Chemical Engineers Annual Meeting, Boston, MA, 11/21
5. **Bryan VanSaders**, Sharon C. Glotzer, "Sculpting Crystals One Burgers Vector at a Time: Towards Colloidal Lattice Robot Swarms", American Physical Society March Meeting, Virtual, 3/21
6. **Bryan VanSaders**, Melody Lim, Vincenzo Vitelli, Heinrich Jaeger, "Complex Acoustic Fields for Driving Levitated Granular Media", American Physical Society March Meeting, Virtual, 3/21
7. **Bryan VanSaders**, Melody Lim, Vincenzo Vitelli, Heinrich Jaeger, "Under-Damped Active Matter via Levitation with Rotating Acoustics: Simulations", Annual Meeting of the APS Division of Fluid Dynamics, Virtual, 11/20
8. **Bryan Vansaders**, Sharon C. Glotzer, "Using Defects to Reshape Colloidal Assemblies", American Institute of Chemical Engineers Annual Meeting, Virtual, 11/20

9. Tianyu Liu, **Bryan VanSaders**, Sharon C. Glotzer and Michael J. Solomon, "Influence of Defect Microstructure on the Structural Color of Colloidal Films", American Institute of Chemical Engineers Annual Meeting, Orlando, FL, 11/19
10. **Bryan VanSaders**, Sharon C. Glotzer, "Interstitial Particle Design for Active Colloidal Microstructures", American Physical Society March Meeting, Boston, MA, 3/19
11. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Defect Strain Fields in Colloidal Crystals", Materials Research Society Fall Meeting and Exhibit, Boston, MA, 11/18
12. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Strain Fields in Repulsive Colloidal Crystals", American Institute of Chemical Engineers Annual Meeting, Pittsburgh, PA, 10/18

INVITED COLLOQUIA AND SEMINARS

1. Condensed Matter Seminar, Wayne State University, Physics, Virtual, 12/21
2. Statistical Thermodynamics & Molecular Simulations Seminar Series, Yale University, Chemical and Environmental Engineering, Virtual, 7/21

POSTERS

1. **Bryan VanSaders**, Sharon C. Glotzer, "Active Matter Coupled to Crystalline Defects Via Strain Field Optimization", American Institute of Chemical Engineers Annual Meeting, Boston, MA, 2021
2. **Bryan VanSaders**, Sharon C. Glotzer, "Morphing Colloidal Crystals with Active Additives", Gordon Research Conference "Multifunctional Materials and Structures", Ventura CA, 2020
3. **Bryan VanSaders**, Sharon C. Glotzer, "Interstitial Particle Design for Active Colloidal Microstructures", Gordon Research Conference "Complex Active and Adaptive Material Systems", Ventura CA, 2019
4. **Bryan VanSaders**, Sharon C. Glotzer, "Interstitial Particle Design for Active Colloidal Microstructures", University of Michigan, Materials Research Symposium, 2018
5. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Strain Fields in Repulsive Colloidal Crystals", University of Chicago, Frontiers of Molecular Engineering, 2018
6. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Strain Fields in Repulsive Colloidal Crystals", Pennsylvania State University, ACS Colloids, 2018
7. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Strain Fields in Repulsive Colloidal Crystals", Georgia Institute of Technology, Soft Matter Frontiers Symposium, 2018
8. **Bryan VanSaders**, Julia Dshemuchadse, Sharon C. Glotzer, "Local Control of Dislocations in Colloidal Materials", University of Michigan, Rackham Engineering Graduate Symposium, 2018

TEACHING

- Attendee, Physics and Astronomy Faculty Teaching Institute, Washington, DC, 6/23
- Virtual class coordinator, Introduction to Mechanics, University of Chicago, Fall 2020
- Guest lecture, Introduction to Mechanics, University of Chicago, Fall 2019

PROFESSIONAL SERVICE

Reviewer *Nature Communications*
 Journal of the Acoustical Society of America
 Proceedings of the National Academy of Sciences
 ACS Nano

OUTREACH

‘Physics with a Bang’ Community Outreach, University of Chicago, 12/19

FELLOWSHIPS

Kadanoff-Rice Postdoctoral Fellowship	University of Chicago	10/19
Rackham Predoctoral Fellowship	University of Michigan	3/19
Materials Science Graduate Research Fellowship	University of California San Diego	9/12

PROFESSIONAL SOCIETIES

Materials Research Society
American Physical Society
American Institute of Chemical Engineers