CV-Tamar Segal-Peretz

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ACADEMIC DEGREES

2013 PhD, The Multidisciplinary Program for Nanoscience & Nanotechnology, Technion- Israel Institute of Technology.
2006 B.Sc., Biochemical Engineering, Department of Chemical Engineering, Technion- Israel Institute of Technology, *Summa Cum Laude*.

ACADEMIC APPOINTMENTS

2022- Present Associate Professor, Department of Chemical Engineering, Technion- Israel Institute of Technology.
2016-2022 Assistant Professor, Department of Chemical Engineering, Technion- Israel Institute of Technology.
2013-2016 Director Postdoctoral Fellow, The Institute for Molecular Engineering, Materials Science Division, Argonne National Laboratory & the University of Chicago.

RESEARCH INTERESTS

- Polymer and hybrid organic-inorganic materials for functional nanostructures
- Water-energy nexus: harnessing atomic layer deposition (ALD) on and within polymers for efficient membranes and filtration processes
- Advanced nanofabrication and nanopatterning
- Self-assembly of block copolymer
- Electron microscopy of nanostructures; 3D characterization using electron microscopy.

FELLOWSHIPS, AWARDS AND HONORS

2022 Kline Research Prize, Technion. ALD for water technologies.
2021 Israel Vacuum Society (IVS) 2021 Early Career Award
2020 Hershel Rich Technion Innovation Award
2018 Represented Israel in HOPE10- Japan Society for the Promotion of Science conference of 100 young scientists and 8 Nobel Laureates.
2016-2018 Horev Fellow, Leaders in Science and Technology, Technion.
2016-2019 Azrieli Fellowship for New Faculty, Israel.
2013-2016 Argonne National Lab Director's Postdoctoral Fellowship.
2013-2015 Weizmann Institute of Science- national postdoctoral award scholar for advancing woman in science.
2012 The Rieger Foundation Fellowship for Environmental Studies.
2012 Russell Berrie Nanotechnology Institute Fellowship for outstanding graduate students.
2011-2013 Eshkol Fellowship for PhD studies by the Israeli Ministry of Science and Technology.
2011 The Rieger Foundation Fellowship for Environmental Studies.
2011 Best Student Research Award from ISES- Israeli Sustainable Energy Society.
2010 The Israeli Ministry of Science and Technology Scholarship for Women in Science and Technology.

RESEARCH GRANTS

2016-2021	Azrieli Foundation, new faculty fellowship and grant.
2017-2020	Israel Innovation Authority, Magnet Consortium.
2018-2019	Canada First Research Excellence Fund, University of Calgary-Technion joint research program.
2018-2022	Israel Science Foundation (ISF) - personal grant.
2018-2022	Israel Science Foundation- ISF equipment support for new faculty.
2019-2020	Israel Innovation Authority, Nofar Program.
2020-2025	Department of Energy (DOE)- Binational Industrial Research and Development (BIRD), US-Israel energy center for water-energy technologies.
2021-2025	Binational Science Foundation (BSF).
2022-2025	Ministry of Energy (as co-PI). Main PI: Daniel Sharon, HUJI
2022-2026	Israel Science Foundation (ISF) - personal grant.
2023-2027	Ministry of Energy.

PUBLICATIONS (last 5 years)

Patents: T. Segal-Peretz, B. Barick, R. Azoulay, Three-dimensional nano-patterns, 2022.

Refereed papers in professional journals- see full list at **Google Scholar**

1. C. G. Arges, Y. Kambe, M. Dolejsi, G. Wu, **T. Segal-Peretz**, J. Ren, C. Cao, J. Kline, P. F. Nealey, Interconnected ionic domains enhance conductivity in microphase separated block copolymer electrolytes, *Journal of Material Chemistry A*, 2017, 5, 5619-5629.

2. **T. Segal-Peretz**, J. Ren, S. Xiong, G. Khaira, A. Bowen, L. E. Ocola, R. Divan, M. Doxastakis, N. J. Ferrier, J. de Pablo, P. F. Nealey, Quantitative three-dimensional characterization of block copolymer directed self -assembly on combined chemical and topographical pre-patterned templates, *ACS Nano*, 2017, 11, 1307-1319.

3. C. Zhou[#], **T. Segal-Peretz**[#], M. E.Oruc, H. S. Suh, G. Wu, P. F. Nealey, Fabrication of nanoporous alumina ultrafiltration membrane with tunable pore size using block copolymer templates, *Advanced Functional Materials*, 2017, 1701756. [#]- equal contributors.

4. G. Khira, M. Doxastakis, A. Bowen, J. Ren, H. S. Suh, **T. Segal-Peretz**, X. Chen, C. Zhou, A. F. Hannon, N. J. Ferrier, V. Vishwanath, D. F. Sunday. R. Gronheid, R. J. Kline, J. J. de Pablo, P. F. Nealey, Derivation of multiple covarying material and process parameters using physics-based modeling of x-ray data, *Macromolecules*, 2017, 50, 7783.

5. J. Ren, C. Zhou, X. Chen, M. Dolejsi, G. Craig, P. Delgadillo, **T. Segal-Peretz**, and P. F. Nealey, Engineering the kinetics of directed self-assembly of block copolymers toward fast and defect-free assembly, *ACS Applied Materials and Interfaces*, 2018, 10, 23414.

6. A. Pandey, M. Derakhshandeh, S.A. Kedzior, B. Pilapil, N. Shomrat, **T. Segal-Peretz**, S.L. Bryant, M. Trifkovic. Role of interparticle interactions on microstructural and rheological properties of cellulose nanocrystal stabilized emulsions. *Journal of Colloid and Interface Science*, 2018, 532, 808-818.

7. C. Khoury, S. Pappuru, N. Gavriely, O. Kleinerman, D. Shpasser, **T. Segal-Peretz**, O. M. Gazit, Cooperatively catalyzed Henry reaction through directed metal-chitosan interactions, *Chem Nano Mat*, 2019, 5, 1498.

8. B. K. Barick, A. Simon, I. Weisbord, N. Shomrat, **T. Segal-Peretz***, Tin oxide nanostructure fabrication via sequential infiltration synthesis in block copolymer thin films, *Journal of Colloid and Interface Science*, 2019, 557, 537-545.

9. R. Azoulay, N. Shomrat, I. Weisbord, G. Atiya, **T. Segal-Peretz***, Metal oxide heterostructure array via spatially controlled-growth within block copolymer templates, *Small*, 2019, 15, 1904657. Cover Paper

10. I. Weisbord, N. Shomrat, H. Moshe, A. Sosnik, **T. Segal-Peretz***, Nano spray-dried block copolymer nanoparticles and their transformation into hybrid and inorganic nanoparticles, *Advanced Functional Materials*, 2020, 30, 1808932.

11. I. Weisbord, N. Shomrat, R. Azoulay, A. Kaushansky, **T. Segal-Peretz***, Understanding and controlling polymer-organometallic precursor interactions in sequential infiltration synthesis, *Chemistry of Materials*, 2020, 32, 4499-4508.

12. J. Ren, **T. Segal-Peretz**, C. Zhou, G. S.W. Craig, P. F. Nealey, Three-Dimensional Superlattice Engineering with Block Copolymer Epitaxy, *Science Advances*, 2020, 6, eaaz0002.

13. A. Levitsky, G. M. Matrone, A. Khirbat, I. Bargigia, X. Chu, O. Nahor, **T. Segal-Perez**, A. Moule, L. J. Richter, C. Silva, N. Stingelin, G. L. Frey, Towards fast screening of organic solar cell blends, *Advanced Science*, 2020, 7, 2000960.

14. L. Rovinsky, B. Barick, E. Lieberman, E. Avraham, G. Nessim, **T. Segal-Peretz**, N. Lachman, Alumina thin-film deposition on rough topographies comprising vertically aligned carbon nanotubes: implications for membranes, sensors, and electrodes, *ACS Applied Nano Materials*, 2020, 4,1,322.

15. Z. Golany, I. Weisbord, M. Abo Jabal, O. Manor, **T. Segal-Peretz***, Polymer dewetting in solvent-non-solvent environment- new insights on dynamics and patterning, *Journal of Colloid and Interface Science*, 2021, 596, 267.

16. T. Itzhak, N. Segev, A. Simon, V. Abetz, G. Ramon, **T. Segal-Peretz***, ALD for gradient surface modification and controlled hydrophilization of ultrafiltration polymer membranes, *ACS Applied Materials and Interfaces*, 2021, 13, 15591.

17. B. K. Barick, N. Shomrat, U. Green, Z. Katzman, **T. Segal-Peretz***, Fabrication of nanoscale oxide textured surfaces on polymers, 2021, *Polymers*, 13, 2209.

18. F. Barrows, H. Arava, C. Zhou, P. Nealey, **T. Segal-Peretz**, Y. Lui, S. Bakaul, C. Phatak, A. K. Petford-Long, Mesoscale confinement effects and emergent quantum interfaces in titania antidot thin oxide films, 2021, *ACS Nano*, accepted.

19. Z. Zhang[#], A. Simon[#], C. Abetz, M. Held, A. Höhme, E. S.Schneider, **T. Segal-Peretz***, Volker Abetz*, Hybrid Organic-Inorganic-Organic Isoporous Membranes with Tunable Pore Sizes and Functionalities for Molecular Separation, 2021, *Advanced Materials*, 2105251. [#]- equal contributors.

20. N. Shomrat, K. Chirko, I. Weisbord, Y. Avniel, S. Khristo, D. Nessim, A. Litman, **T. Segal-Peretz***, Development and evaluation of three-dimensional metrology of nanopatterns using electron microscopy, 2021, *Journal of Micro/Nanopatterning, Materials and Metrology*, 21, 021202.

21. R. Azoulay, M. Barzialy, I. Weisbord, R. Avrahami, E. Zussman, **T. Segal-Peretz***, Fabricating nanowires, nanobelts, and core-shell fibers using sequential infiltration synthesis within electrospun polymer fibers, 2022, *ACS Applied Nano Materials*, 5, 7228.

22. S. Das, M. O'Connell, H. Xu, R. Berenstein, J. W. Elam, J. Kim, H. Raanan, K. Sankhala, **T. Segal-Peretz**, R. Shevate, M. Suss, W. Zhang, X. Zhou, S. B. Darling, J. B. Dunn, Assessing advances in reducing membrane fouling to improve process economics and sustainability of water treatment, 2022, *ACS Environmental Science & Technology Engineering*, Accepted.

23. W. Shan, I. Weisbord, X. Feng, J. Hyon, A. Avgeropoulos, **T. Segal-Peretz***, E. L. Thomas*, Hypervelocity deformation via brush-brush slip in block copolymer lamellae, 2022, *Macromolecules*, 55, 9022-9029.

24. A. Simon[#], Z. Zhang[#], C. Abetz, V. Abetz*, **T. Segal-Peretz***, Atomic layer deposition enables multi-modal three-dimensional electron microscopy of isoporous membranes, 2023, *Nanoscale*, accepted.