**Bernadeta R. Srijanto**

Cleanroom Engineer

Nanofabrication Research Group

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Oak Ridge National Laboratory

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**Education**

University of Tennessee-Knoxville:

Ph.D. 2008 Electrical Engineering.

M.S. 2002 Electrical Engineering

**Professional Positions**

2015 – present **Cleanroom Engineer, Center for Nanophase Materials Sciences (ORNL)**

Responsible for maintaining the electron-beam lithography tool (JEOL 8100), ensuring performance of the tool, developing user guides, and serving as technical contact on user projects requiring the EBL. Responsibility for other tools: photolithography contact aligner (SUSS) and acid/base chemical hood. Perform process development to support user projects and in-house research, and new equipment process capabilities as needed.

2013 – 2015 **Research Associate, Dept. of Materials Science and Engineering (University of Tennessee**)

 Support cleanroom operation and safety.

Develop micro- and nanofabrication process development for user projects and in-house research.

2009 – 2012 **Postdoctoral Research Associate (ORNL)**

Conduct research focusing on fabrication and characterization of silicon nanowires transistors, microfluidics platforms to study molecular transport, and bacterial chemotaxis.

**Awards**

Outstanding CNMS Staff Member Award (2022)

ORNL Awards Night Operational Performance/Mission Support Team (2016)

**Patent**

1. V. Kertesz, B.R. Srijanto, Collier C.P., Cahill J.F.

“Laser Ablation Sampling System and Method”

Patent granted: December 12, 2023

U.S. Patent No. 11,841,297 B2 (U.S.A)

1. V. Kertesz, B.R. Srijanto, Collier C.P., Cahill J.F.

“Laser ablation sampling system and method”

Patent granted: November 23, 2021

Patent number: 11,181,446 B2 (U.S.A)

**Professional Memberships**

American Vacuum Society

**Publications** (ORCID 0000-0002-1188-1267)

E. K. Beutler, V. Kumar, G. H. K. Duddy, M. R. Bourgeois, B. R. Srijanto, J. A. Hachtel, D. J. Masiello, J. P. Camden “Localizing Low-Grade Heat Using Hybrid Photonic-Phononic Materials” *ACS Energy Lett.,* 9, 3, 941–947 (2024).

 J. M. Morgan, J. Jelenska, D. K Hensley, P. Li, **B. R Srijanto**, S.T Retterer, R. F Standaert, J. L Morrell-Falvey, J. T. Greenberg. “Using Vertically Aligned Carbon Nanofiber Arrays on Rigid or Flexible Substrates for Delivery of Biomolecules and Dyes to Plants” *Journal of Visualized Experiments : Jove*. 197 Jul(2023).

V. Iyer, K. Roccapriore, J. Ng, **B. R. Srijanto**, D. Lingerfelt, B. Lawrie “Photon bunching in cathodoluminescence induced by indirect electron excitation” *Nanoscale*, 15, 9738-9744 (2023).

T. C. Messina, **B. R. Srijanto**, C. P. Collier, I. I. Kravchenko, C. I. Richards “Gold ion beam milled gold zero-mode waveguides” *Nanomaterials,* 12 (10), 1755 (2022).

W. Huang, X. He, C. Liu, X. Li, Y. Liu, C. P. Collier, **B. R. Srijanto**, J. Liu, J. Cheng “Droplet evaporation on hot micro-structured superhydrophobic surfaces: analysis of evaporation from droplet cap and base surfaces” *Int. J. Heat Mass Transf.*, 185, 122314 (2022).

A. A. Masud, S. M. N. Arefin, F. Fairooz, X. Fu, F. Moonschi, **B. R. Srijanto**, K. R. Neupane, S. Aryal, R. Calabro, D. -Y. Kim, C P. Collier, M. H. Chowdhury, C. I. Richards “Photoluminescence enhancement, blinking suppression, and improved biexciton quantum yield of single quantum dots in zero mode waveguides” *J. Phys. Chem. Lett.*, 12 (13), 3303 (2021).

V. Kertesz, J. F. Cahill, **B. R. Srijanto**, C. P. Collier, M. Vavrek, B. Chen “Absolute quantitation of propranolol from 200‐μm regions of mouse brain and liver thin tissues using laser ablation‐dropletProbe‐mass spectrometry” *Rapid Communications in Mass Spectrometry*, 35 (5), e9010 (2021).

V. Kertesz, J. F. Cahill, **B. R. Srijanto**, C. P. Collier, M. Vavrek, B. Chen “Integrated laser ablation‐dropletProbe‐mass spectrometry for absolute drug quantitation, metabolite detection, and distribution in tissue” *Rapid Communications in Mass Spectrometry,* 35 (23), e9202 (2021).

X. He, J. Cheng, C. P. Collier, **B. R. Srijanto**, D. P. Briggs “Evaporation of squeezed water droplets between two parallel hydrophobic/superhydrophobic surfaces” *J Colloid Interface Sci*, 576, 127 (2021).

E. S. Muckley, L. Collins, **B. R. Srijanto**, I. N. Ivanov “Machine learning‐enabled correlation and modeling of multimodal response of thin film to environment on macro and nanoscale using “lab‐on‐a‐crystal” *Adv. Funct. Mater.*, 30 (10), 1908010 (2020).

A. Al Masud, W. E. Martin, F. H. Moonschi, S. M. Park, B. **R. Srijanto**, K. R. Graham, C. P. Collier, C. I. Richards “Mixed metal zero-mode guides (ZMWs) for tunable fluorescence enhancement” *Nanoscale Adv.*, 2 (5), 1894 (2020).

W. L. Boldman, C. Zhang, T. Z. Ward, D. P. Briggs, **B. R. Srijanto**, P. Brisk, P. D. Rack “Programmable electrofluidics for ionic liquid based neuromorphic platform “*Micromachines*, 10 (7), 478 (2019).

K. Wang, A. A. Puretzky, Z. Hu, **B. R. Srijanto**, X. Li, N. Gupta, H. Yu, M. Tian, M. Mahjouri-Samani, X. Gao, A. Oyedele, C. M Rouleau, G. Eres, B. I Yakobson, M. Yoon, K. Xiao, D. B. Geohegan “Strain tolerance of two-dimensional crystal growth on curved surfaces “*Sci. Adv.,* 5 (5), eaav4028 (2019).

F. Liu, S. M. Abel, L. Collins, **B. R. Srijanto**, R. Standaert, J. Katsaras, C. P. Collier “Geometry‐Dependent Nonequilibrium Steady‐State Diffusion and Adsorption of Lipid Vesicles in Micropillar Arrays” *Adv. Mater. Interfaces*, 6 (9), 1900054 (2019).

W. Shi, J.R. Vieitez, A. S. Berrier, M. W. Roseveare, D. A. Surinach, **B. R. Srijanto**, C. P. Collier, J. B Boreyko “Self-stabilizing transpiration in synthetic leaves” *ACS applied materials & interfaces,* 11 (14), 13768 (2019).

S. F. Ahmadi, S. Nath, G. J. Iliff, **B. Srijanto**, C. P. Collier, P. Yue, J. B. Boreyko “Passive antifrosting surfaces using microscopic ice patterns” *ACS Applied Materials & Interfaces*, 10 (38), 32874 (2018).

T. Wulz, W. Gerding, N. Lavrik, D. Briggs, **B. Srijanto**, K. Lester, D. Hensley, S. Spanier, E. Lukosi “Realization of deep 3D metal electrodes in diamond radiation detectors”, *Appl. Phys. Lett.*, 112 (22), 222101 (2018).

H. Yu, N. Gupta, Z. Hu, K. Wang, **B. R Srijanto**, K. Xiao, D. B Geohegan, B. I Yakobson “Tilt Grain Boundary Topology Induced by Substrate Topography”, *ACS Nano*, 11 (9), 8612 (2017).

W. E. Martin, N. Ge, **B. R Srijanto**, E. Furnish, C. P. Collier, C. A. Trinkle, C. I. Richards “Real-Time Sensing of Single-Ligand Delivery with Nanoaperture-Integrated Microfluidic Devices”, *ACS Omega*, *2* (7), 3858 (2017).

M. D. Mulroe, **B. R. Srijanto**, S. F. Ahmadi, C. P. Collier, J. B Boreyko “Tuning Superhydrophobic Nanostructures to Enhance Jumping-Droplet Condensation”, *ACS Nano*, *11* (8), 8499 (2017).

R. JT. Nicholl, N. V. Lavrik, I. Vlassiouk, **B. R Srijanto**, K. I. Bolotin “Hidden area and mechanical nonlinearities in freestanding graphene”, *Phys. Review Letter*, 118, 266101 (2017).

T. Tai, V. Kertesz, M.‐W. Lin, **B. R Srijanto**, D. Hensley, K. Xiao, G. J. Van Berkel “Polymeric Spatial Resolution Test Patterns for Mass Spectrometry Imaging Using Nano‐Thermal Analysis with Atomic Force Microscopy”, *Rapid Commun. Mass Spectrom.,* 31, 1204 (2017).

W. D. Hoffmann, V. Kertesz, **B. R Srijanto**, G. J. Van Berkel “Atomic Force Microscopy Thermally-Assisted Microsampling with Atmospheric Pressure Temperature Ramped Thermal Desorption/Ionization-Mass Spectrometry Analysis”, *Anal. Chem.*, *89* (5), 3036 (2017).

B. B. Lewis, B. A. Mound, **B. Srijanto**, J. D. Fowlkes, G. M. Pharr, P. D Rack Growth and nanomechanical characterization of nanoscale 3D architectures grown via focused electron beam induced deposition, *Nanoscale*, **9**, 16349 (2017).

M.A. Nguyen, **B. Srijanto**, C.P. Collier, S.T. Retterer, S.A. Sarles “Hydrodynamic trapping for rapid assembly and in situ electrical characterization of droplet interface bilayer arrays”, *Lab Chip*, 16, 3576 (2016).

W.E. Martin, **B.R. Srijanto**, C.P. Collier, T. Vosch, C.I. Richards “A comparison of single-molecule emission in aluminum and gold zero-mode waveguides”, *J. Phys. Chem. A*, 120, 6719 (2016).

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W. Daming, J. H. Edgar, D. P. Briggs, S. T. Retterer, **B. R. Srijanto**, D. K. Hensley, H. M. Meyer “Atomic Layer Deposition TiO2–Al2O3 Stack: An Improved Gate Dielectric on Ga-Polar GaN Metal Oxide Semiconductor Capacitors,” *J. of Vacuum Science & Technology B*, 32, 060602 (2014)

M. Mahjouri-Samani, M. Tian, K. Wang, A. Boulesbaa, C. M. Rouleau, A. A. Puretzky, M. A. McGuire, **B. R. Srijanto**, K. Xiao, G. Eres, G. Duscher, D. B. Geohegan “Digital Transfer Growth of Patterned 2D Metal Chalcogenides by Confined Nanoparticle Evaporation,” ACS Nano 8, 11567 (2014).

K. He, S. T. Retterer, **B. R. Srijanto**, J. C. Conrad, R. Krishnamoorti “Transport and Dispersion of Nanoparticles in Periodic Nanopost Arrays,” ACS Nano 8, 4221 (2014).

R. L. Agapov, J. B. Boreyko, D. P. Briggs, **B. R. Srijanto**, S. T. Retterer, C. P. Collier, N. V. Lavrik “Length scale of Leidenfrost Rachet Switches Droplet Directionality,” *Nanoscale* 6, 9293 (2014).

E. Wright, S. Neethirajan, K. Warriner, S. T. Retterer, **B. R. Srijanto** “Single Cell Swimming Dynamics of Listeria Monocytogenes Using a Nanoporous Microfluidic Platform,” *Lab on a Chip* 14, 938 (2014)

R. L. Agapov, J. B. Boreyko, D. P. Briggs, **B. R. Srijanto**, S. T. Retterer, C. P. Collier, N. V. Lavrik “Asymmetric

Wettability of Nanostructures Directs Leidenfrost Droplets,” ACS Nano 8, 860 (**2014**).

# R. L. Agapov, B. R. Srijanto, C. Fowler, D. P. Briggs, N. V. Lavrik, M. J. Sepaniak “Lithography-Free Approach to Highly Efficient, Scalable SERS Substrates Based on Disordered Clusters of Disc-On-Pillar Structures,” *Nanotechnology* 24, 505302 (2013).

J. B. Boreyko, **B. R. Srijanto**, T. D. Nguyen, C. Vega, M. Fuentes-Cabrera, C. P. Collier “Dynamic Defrosting on Nanostructured Superhydrophobic Surfaces,” *Langmuir* 29, 9516 (2013).

**B. R. Srijanto**, C. P. Cheney, D. L. Hedden, A. C. Gehl, P. B. Crilly, M. A. Huestis, T. L. Ferrell “Piezoresistive Microcantilevers-based Cocaine Biosensors,” *Sensor Letters* 10 (3-4), 850 (2012).

**B. R. Srijanto**, S. T. Retterer, J. D. Fowlkes, M. J. Doktycz “Nanostructured Silicon Membranes for Control of

Molecular Transport,” *J. of Vacuum Science & Technology B*, 28, C6P48-C6P52 (2010)

**Graduate and Postdoctoral Advisors:**

Graduate Advisor: Donald W. Bouldin (University of Tennessee-Knoxville)

 Thomas L. Ferrell (University of Tennessee-Knoxville)

 Paul B. Crilly (University of Tennessee-Knoxville)

 Postdoctoral Advisor: Scott T. Retterer (ORNL)