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# Nathan K. Cernetic, Ph.D.

Senior Patent Agent

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Nathan Cernetic is a registered patent agent focusing his practice on the preparation and prosecution of patent applications in a broad range of technology areas, including electrical, mechanical, chemical, optics, physics, materials science, and computer software fields. Representative client technologies include CMOS image sensors, semiconductor device fabrication, photonic devices, unmanned aerial vehicles (UAVs), machine learning, and medical devices such as ophthalmic devices, endoscopes, and wearables.

Nathan holds a Ph.D. in materials science and engineering from the University of Washington. During graduate school, Nathan was a member of the self-assembly and nanomaterials thrust of the Jen Research Group. His doctoral research explored the design and application of multifunctional self-assembled monolayers for organic microelectronic devices. In particular, Nathan's research focused on the development, fabrication, and characterization of organic electronic devices with monolayer thick component layers, including self-assembled monolayer field-effect transistors, solution processed hybrid dielectrics, and graphene-based transistors. Nathan is a co-author of over ten peer-reviewed scientific journal publications, including four first author publications.

## Education

- Ph.D., Materials Science and Engineering, University of Washington, 2016
- B.S., Materials Science and Engineering, Arizona State University, 2010
- Intensive Japanese Language Program, Waseda University, 2008

## Professional Experience

- Christensen O'Connor Johnson Kindness<sup>PLLC</sup>  
Seattle, WA, 2017 – present
- Blakely Sokoloff Taylor & Zafman LLP  
Seattle, WA, 2016 – 2017
- AMPACC Law Group, PLLC  
Technical Advisor, Mountlake Terrace, WA, 2015

## Technical Experience

- Professor Alex Jen Research Group  
University of Washington, 2010 – 2016
- Professor Nathan Newman Research Group  
Arizona State University, 2008 – 2010

## Bar & Court Admissions

- United States Patent and Trademark Office



## Presentations & Publications

### Publications:

- “Doping Versatile n-Type Organic Semiconductors via Room Temperature Solution-Processable Anionic Dopants,” *American Chemical Society Applied Materials & Interfaces*, Vol. 9, Issue 1, pp. 1136-1144, 2016, Chueh, CC., Li, CZ., Ding, Z.L., Cernetic, N., Li, X., and Jen, A. K.-Y.
- “Multifunctional Self-Assembled Monolayers for Organic Field-Effect Transistors,” University of Washington, Thesis, 2016, Cernetic, N.
- “PCBM-doped electro-optic materials: investigation of dielectric, optical and electro-optic properties for highly efficient poling,” *Journal of Materials Chemistry C*, Vol. 4, Issue 43, pp. 10286-10292, 2016, Wu, J., Luo, J., Cernetic, N., Chen, K., Chiang, KS., and Jen, A. K.-Y.
- “Enhanced Performance of Self-Assembled Monolayer Field-Effect Transistors with Top-Contact Geometry through Molecular Tailoring, Heated Assembly, and Thermal Annealing,” *Advanced Functional Materials*, Vol. 25, Issue 33, pp. 5376-5383, 2015, Cernetic, N., Weidner, T., Baio, J.E., Lu, H., Ma, H., and Jen, A. K.-Y.
- “Influence of self-assembled monolayer binding group on graphene transistors,” *Applied Physics Letter*, Vol. 106, Issue 2, 2015, Cernetic, N., Hutchins, D.O., Ma, H., and Jen, A. K.-Y.
- “Low operational voltage and high performance organic field effect memory transistor with solution processed graphene oxide charge storage media,” *Organic Electronics*, Vol. 15, Issue 11, pp. 2775-2782, 2014, Kim, TW., Cernetic, N., Gao, Y., Bae, S., Lee, S., Ma, H., Chen, H., and Jen, A. K.-Y.
- “Systematic Doping Control of CVD Graphene Transistors with Functionalized Aromatic Self-Assembled Monolayers,” *Advanced Functional Materials*, Vol. 24, Issue 22, pp. 3464-3470, 2014, Cernetic, N., Wu, S., Davies, J.A., Krueger, B.W., Hutchins, D.O., Xu, X., Ma, H., and Jen, A. K.-Y.
- “Photo-induced denitrogenation of triazoline moieties for efficient photo-assisted poling of electro-optic polymers,” *Polymer Chemistry*, Vol. 4, Issue 16, pp.4434-4441, 2013, Li, M., Jin, Z., Cernetic, N., Luo, J., Cui, Z., and Jen, A. K.-Y.
- “Effect of self-assembled monolayer structural order, surface homogeneity and surface energy on pentacene morphology and thin film transistor device performance,” *Journal of Materials Chemistry C*, Vol. 1, Issue 1, pp. 101-113, 2013, Hutchins, D.O., Weidner, T., Biao, J.E., Polishak, B., Acton, O., Cernetic, N., Ma, H., and Jen, A. K.-Y.
- “Bottom-contact small molecule n-type organic field effect transistors achieved via simultaneous modification of electrode and dielectric surfaces,” *Organic Electronics*, Vol. 13, Issue 12, pp. 3226-3233, 2012, Cernetic, N., Acton, O., Weidner, T., Hutchins, D.O., Baio, J.E., Ma, H., and Jen, A. K.-Y.
- “Solid-state densification of spun cast self-assembled monolayers for use in ultra-thin hybrid dielectrics,” *Applied Surface Science*, Vol. 261, pp. 908-915, 2012, Hutchins, D.O., Acton, O., Weidner, T., Cernetic, N., Baio, J.E., Castner, D.G., Ma, H., and Jen, A. K.-Y.
- “Multifunctional phosphonic acid self-assembled monolayers on metal oxides as dielectrics, interface modification layers and semiconductors for low-voltage high-performance organic field-effect transistors,” *Physical Chemistry Chemical Physics*, Vol. 14, Issue 41, pp. 14110-14126, 2012, Ma, H., Acton, O., Hutchins, D.O., Cernetic, N., and Jen, A. K.-Y.



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- “Spin cast self-assembled monolayer field effect transistors,” *Organic Electronics*, Vol. 13, Issue 3, pp. 464-468, 2012, Hutchins, D.O., Acton, O., Weidner, T., Cernetic, N., Baio, J.E., Ting, G., Castner, D.G., Ma, H., and Jen, A. K.-Y.
- “Influence of surface topography on in situ reflection electron energy loss spectroscopy plasmon spectra of AlN, GaN, and InN semiconductors,” *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films*, Vol. 29, Issue 4, pp. 1899-1902, 2011, Strawbridge, B., Cernetic, N., Chapley, J., Singh, R.K., Mahajan, S., and Newman, N.
- “Spin Cast and Patterned Organophosphonate Self-Assembled Monolayer Dielectrics on Metal-Oxide-Activated Si,” *Advanced Materials*, Vol. 23, Issue 16, pp. 1899-1902, 2011, Acton, O., Hutchins, D.O., Árnadóttir, L., Weidner, T., Cernetic, N., Ting, G.G., Kim, T.-W, Castner, D.G, Ma, H., and Jen, A. K.-Y.