

NANO KOREA 2020

July 1~3, KINTEX, Korea

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EDUCATION

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|---------------------------------|--------|---------------------|-------------|
| Ecole Polytechnique de Montreal | Ph.D | Engineering Physics | 2006 |
| Ecole Polytechnique de Montreal | B.Eng. | Engineering Physics | 2001 |

PROFESSIONAL ACTIVITIES

- Associate Professor, Materials Science and Engineering, North Carolina State University, USA, July 2018 to Present.
- Associate Professor, Materials Science and Engineering, King Abdullah University of Science and Technology, Saudi Arabia, July 2015 to June 2018.
- Assistant Professor, Materials Science and Engineering, King Abdullah University of Science and Technology, Saudi Arabia, July 2015 to June 2018.
- Postdoctoral Associate, Materials Science and Engineering, Cornell University, USA, April 2006 to June 2009.

AWARD AND HONORS

- Career Development SABIC Chair, Saudi Basic Industries Corporation (SABIC) (2013-2016)
- *Journal of Materials Chemistry C* Emerging Investigator (2014)
- Arab-American Frontiers Fellow, US National Academies of Science, Engineering and Medicine (2012)
- NSERC Postdoctoral Fellow, Canada (2006-2008)
- Electronic Materials Postdoctoral Fellow Award, American Vacuum Society (2006)
- NSERC Post-Graduate Research Scholarship (2003-2005)
- Best Instructor Award, Engineering Physics Department, Ecole Polytechnique de Montreal (2000)

MAIN SCIENTIFIC PUBLICATION

- W. Yu, F. Li, L. Yu, M. R. K. Niazi, D. Corzo, C. Ma, S. Dey, M. L. Tietze, U. Buttner, X. Wang, Z. Wang, M. N. Hedhili, C. Guo, T. Wu, **A. Amassian***, “Single-crystal hybrid perovskite field-effect transistors”, *Nature Communications* 9, 5354 (2018).
- A. R. Kirmani, A. D. Sheikh, M. R. Niazi, M. A. Haque, M. Liu, F. P. García de Arquer, O. Voznyy, N. Gasparini, D. Baran, T. Wu, E. H. Sargent, **A. Amassian***, “Overcoming

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the Ambient Manufacturability-Scalability-Performance Bottleneck in Colloidal Quantum Dot Photovoltaics” *Advanced Materials* 30, 1801661 (2018).

- J. Xu, O. Voznyy, M. Liu, A. Kirmani Δ , G. Walters, R. Munir, M. Abdelsamie, A. Proppe, A. Sarkar, F. P. García de Arquer, M. Wei, B. Sun, M. Liu, O. Ouellette, R. Quintero-Bermudez, J. Li, J. Fan, L. Quan, P. Todorovic, H. Tan, S. Hoogland, S. Kelley, M. Stefik, **A. Amassian***, E. H. Sargent*, "2D Matrix Engineering for Homogeneous Quantum Dot Coupling in Photovoltaic Solids" *Nature Nanotechnology* 13, 456-462 (2018).
- M.-C. Tang, Y. Fan, D. Barrit, X. Chang, H. X. Dang, R. Li, K. Wang, D.-M. Smilgies, S. (F.) Liu, S. De Wolf, T. D. Anthopoulos*, K. Zhao*, **A. Amassian***, "Ambient blade coating of mixed cation, mixed halide perovskites without dripping: In situ investigation and highly efficient solar cells", *Journal of Materials Chemistry A* 8, 1095-1104 (2020).
- H. X. Dang, K. Wang, M. Ghasemi, M.-C. Tang Δ , M. De Bastiani, E. Aydin, E. Duzon Δ , D. Barrit Δ , J. Peng, D.-M. Smilgies, S. De Wolf*, **A. Amassian***, "Multi-cation Synergy Suppresses Phase Segregation in Mixed-Halide Perovskites", *Joule* 3, 1746-1764 (2019).
- K. Wang, M.-C. Tang Δ , H. X. Dang, R. Munir, D. Barrit, M. De Bastiani, E. Aydin, D.-M. Smilgies, S. De Wolf*, **A. Amassian***, "Kinetic Stabilization of the Sol-Gel State in Perovskites Enables Facile Processing of High-Efficiency Solar Cells", *Advanced Materials* 31, 1808357 (2019).
- Y. Fan, J. Fang, X. Chang, M.-C. Tang, D. Barrit, Z. Xu, Z. Jiang, J. Wen, H. Zhao, T. Niu, D.-M. Smilgies, S. Jin, Z. Liu, E. Q. Li, **A. Amassian***, S. (F.) Liu*, K. Zhao*, "Scalable Ambient Fabrication of High-Performance CsPbI₂Br Solar Cells", *Joule* 3, 2485-2502 (2019).
- D. Barrit, P. Cheng, M.-C. Tang, K. Wang, H. Dang, D.-M. Smilgies, S. Liu, T. D. Anthopoulos*, K. Zhao*, **A. Amassian***, "Impact of the Solvation State of Lead Iodide on Its Two-Step Conversion to MAPbI₃: An In Situ Investigation", *Advanced Functional Materials* 29, 1807544 (2019).
- E. Duzon, A. E. Mansour, M. R. Niazi, R. Munir, D.-M. Smilgies, X. Sallenave, C. Plesse, F. Goubard, **A. Amassian***, "Conducting and Stretchable PEDOT:PSS Electrodes: Role of Additives on Self-Assembly, Morphology, and Transport", *ACS Applied Materials and Interfaces* 11, 17570-17582 (2019).
- M. Liu, Y. Chen, C.S. Tan, R. Quintero-Bermudez, A.H. Proppe, R. Munir, H. Tan, O. Voznyy, B. Scheffel, G. Walters, A.P.T. Kam, B. Sun, M.J. Choi, S. Hoogland, **A. Amassian**, S.O. Kelley, F.P. de Arquer García, E.H. Sargent, "Lattice anchoring stabilizes solution-processed semiconductors" *Nature* 570, 96-101 (2019).
- R.W. Epps, M.S. Bowen, K. Abdel-Latif, A.A. Volk, S. Han, K.G. Reyes, **A. Amassian**, M. Abolhasani*, "Artificial chemist: Autonomous quantum dot synthetic platform", *Advanced Materials* (2020) in press.

RESEARCH INTERESTS

- Organic electronics and photovoltaics
- Hybrid perovskite optoelectronics and photovoltaics
- Solution processed semiconducting thin films
- In situ characterization during solution processing
- Crystallization and structure-property relationships in ink-based semiconductors