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Engineering & Scientific Consulting

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Professional Profile

Dr. Dawley specializes in the processing and characterization of electronic materials and how defects in these materials affect performance in electronic devices and components. She has significant experience in multi-layer ceramic coatings, particularly with dielectric materials for 5G telecommunication applications.

Dr. Dawley is well-versed in addressing a variety of problems that can arise in microelectronics including:

- The influence of operating conditions and processing on circuit components
- Chemical and structural analysis at microelectronic length scales
- Identifying stress and its effect on performance in coatings

During her doctoral work at Cornell University, Dr. Dawley designed and fabricated record-breaking tunable-dielectric materials at 5G telecommunication frequencies. She worked with semiconductor and government entities to translate her academic research into commercially-viable, silicon-based technologies. Her studies focused on the growth and characterization of complex oxide thin films, with experience in thermal barrier coatings, ultra-high-vacuum engineering, and photolithography.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, Cornell University, 2018

M.S., Materials Science and Engineering, Cornell University, 2014

B.S., Physics, University of Virginia, 2011

Publications

Hagerstrom AM, Lu X, Dawley NM, Nair HP, Mateu J, Horansky RD, Little CAE, Booth JC, Long CJ, Schlom DG, Orloff ND. Sub-nanosecond tuning of microwave resonators fabricated on Ruddlesden-Popper dielectric thin films. *Advanced Materials Technologies* 2018; 2018:1800090.

Kendrick CE, Bomberger C, Dawley NM, Georgiev J, Shen JH, Redwing JM. Silicon nanowire growth on poly-silicon-on-quartz substrates formed by aluminum-induced crystallization. *Crystal Research and Technology* 2013; 48:658.

Presentations

Natalie Dawley, Ph.D.
06/19 | Page 1

Dawley NM, Olsen GH, Lu X, Orloff ND, Holtz ME, Lee C-H, Zhang J, Muller DA, Fennie CJ, Booth JC, Schlom DG. Designer $(\text{SrTiO}_3)_n(\text{BaTiO}_3)_m\text{SrO}$ Superlattices for mmWave Tunable Dielectrics. Invited talk, Electronic and Advanced Materials, Orlando, FL, 2018.

Dawley NM, Olsen GH, Lu X, Orloff ND, Holtz ME, Lee C-H, Zhang J, Muller DA, Fennie CJ, Booth JC, Schlom DG. Defect Mitigating $(\text{SrTiO}_3)_n(\text{BaTiO}_3)_m\text{SrO}$ Superlattices for mmWave Tunable Dielectrics. Accepted talk, Workshop on Oxide Electronics 24, Chicago, IL, 2017.

Dawley NM, Lee C-H, Schlom DG. Changing the Channel on Satellites: Designer Oxides for High Frequency Tunable Dielectrics. Invited talk, P&G TechEx symposium, Ithaca, NY, 2015.