2019 Peter Mark Memorial Awardee: Stephanie Law

"For the epitaxy of novel materials and heterostructures for optics in the far-infrared and terahertz spectral ranges"

The Peter Mark Memorial Award honors a special type of scientist – one under 35 years of age, who has already made significant scientific contributions in his/her field through outstanding theoretical or experimental work. At the 66th International Symposium in October 2019, in Columbus, Ohio, the AVS honored a young scientist, Dr. Stephanie Law, University of Delaware, with this award. Stephanie's work has earned her much recognition in her career, particularly in her research area of molecular beam epitaxy growth of complex materials and heterostructures. The AVS wanted to know more about her work, and Stephanie graciously granted us an interview. She primarily talked about her teaching and research, but she also reflected upon how strong, positive personal and professional relationships have played a big role in her success.

Professional Success and Research Interests

Some online research revealed that, in addition to the 2019 Peter Mark Memorial Award, Stephanie has won many prestigious professional awards. Additionally, she currently holds the position of Clare Boothe Luce Assistant Professor of Materials Science and Engineering at the University of Delaware. Luce's program encourages the entry of women into technological fields traditionally dominated by men. Furthermore, Stephanie is up for promotion to Associate Professor this year at the University of Delaware.

Stephanie's primary research interests include molecular beam epitaxy growth of semiconductors and van der Waals materials and heterostructures for optical applications in the infrared and terahertz spectral ranges. When asked why she feels passionately about molecular beam epitaxy growth of complex materials and heterostructures, she explained how she finds it fun! She went on to explain that it is fun because nature has provided us with naturally-occurring materials, and molecular beam epitaxy lets you go beyond naturally-occurring combinations. Complex stacking is a way of controlling material properties.

Building Relationships

Stephanie attributed some of her professional satisfaction to the relationships in her life inside and outside of work, including those of her family, her professional mentors, her students, her leisure-time groups, and even her expanding relationship with the AVS.

Family: Stephanie revealed that she has always been supported by her family and husband in her career. Her husband, in particular, has been willing to move across the country with her, so she could advance her career. She feels extremely appreciative about this.

Mentors: Stephanie has had multiple mentors throughout her career. As an undergraduate, she did research with Prof. Paul Canfield at Iowa State. She expanded on how he shaped her life professionally, “He was instrumental in convincing me to continue in science. Without his encouragement, it is highly likely I would have left the field. He also helped me apply to graduate school”. Also, her postdoctoral advisor, Prof. Dan Wasserman, urged her to consider faculty positions and “was an incredible asset throughout my postdoc years”. Finally, while at University of Delaware, she has had formal faculty mentors, Prof. Joshua Zide (also a Peter Mark Memorial Awardee), and many informal mentors both inside and outside of her department. Her last thoughts on her mentors were this, “Everyone has been extremely helpful and supportive. Without this mentorship, I certainly would not be where I am today”. These examples of strong mentorship underline the impact a good mentor can truly have.

Students: Stephanie cited working with graduate students as her favorite part of her job. She finds it very rewarding to help her students become independent scientists. There are periods of the year, like in the summer, that she does more in-depth laboratory work with them, and she enjoys this freedom immensely. One challenging aspect of her job is grading. She would rather help students learn than spend time grading, which she admitted to finding boring. Also, she explained that it can be difficult to design effective assessments sometimes.

When asked if she had advice for those interested in her research area, Stephanie highlighted the importance of having or being open to developing a diverse skillset. To effectively use the machines she uses requires plumbing, electrical, and mechanical skills. Those willing to learn and try new things will go far, particularly the ones not afraid of the breadth of knowledge. Additionally, when asked about advice for those looking to work as professors, she offered the following, “Don’t put too much pressure on yourself. Keep perspective. In science and engineering work, your identity can get tied up in it. Don’t let your identity get too tied up in your profession.”

Leisure-Time Groups: Outside of work, Stephanie pursues some exciting activities in her personal life that positively impact her professional life. She likes to spend her free time playing French horn (for the last 25 years) and she participates in the First State Symphonic Band. She also enjoys trail running, and has run on a competitive long-distance relay team of women scientists called Girls Heart Rockets since 2008. Stephanie is known as an ultrarunner (usually running about 50 miles per race). In teams of 6, they can run up to 200 miles! Not only has her relationship with these women provided a great network of women scientists, but the experience of running provides stress relief and clears her mind. She finds it important to get away from the lab because it can give her perspective.

The AVS Community: Finally, Stephanie has developed an expanding relationship with the AVS. She first became affiliated with the AVS through the North American Molecular Beam Epitaxy conference (NAMBE). The NAMBE conference papers are published in the *Journal of Vacuum Science and Technology (JVST).* She explained that publishing in *JVST*, as part of the NAMBE special issue, came with a complimentary AVS membership, thus beginning her involvement with the Society. Winning the Peter Mark Memorial Award this year has “certainly been the highlight of her experience with AVS,” but she has also sincerely appreciated publishing in the *JVST* journals. She feels that *JVST* is able to recruit expert reviewers and has a reasonable turnaround time. She has had uniformly positive experiences publishing in *JVST.* For this reason, she is excited to be recently appointed as an Associate *JVST* Editor. She wants to give back and provide the type of positive experience and opportunity to other writers that she has had.

Please join the AVS in congratulating this deserving awardee AND newly-appointed Associate *JVST* Editor!