

Commemorating the Career of John Coburn

- Tributes from Coburn-Winters Student Awardees



(1994) Bruce Kellerman
Vice President, The Audit Group

Believe it or not, competing for this award completely changed my career direction (unbeknown to me at the time) ... I really wanted to be the first recipient of this award given the legacy of John Coburn. I was finishing up my PhD at Sandia National Labs in Albuquerque when I applied for this award at the National AVS Conference. During my presentation rehearsal at Sandia, Dr. Peter Feibelman stood up and told me he stopped paying attention after my third slide, because I did not give him a reason to care. I was determined to do John Coburn proud by having a solid presentation ... so I completely revised my presentation in order to win. It worked. This experience caused me to always focus on communicating scientific concepts in a clear, concise manner ... which ended up being the driving force behind my movement into customer-interfacing roles for technical companies.



(1996) Jane Chang
Professor, UCLA

Competing for the Coburn-Winters Student Award was a unique and rewarding experience. I met great colleagues through that occasion and developed many close interactions with them. I had the honor and opportunity to write a review article with John when AVS celebrated its 50th anniversary – it was a great learning experience that had lasting impact on me. As a young researcher, I focused most of my attention on research. John encouraged me to get more involved with AVS and PSTD, to give back to a great community that supports this exciting field. John was not only an incredible researcher who taught me plasma science but also a great mentor who cared deeply about the young researchers in the field.



(1998) Cathy Labelle
Director, Intel Corporation

Receiving the Coburn and Winters Award in 1998 was and is one of the highlights of my career in plasma science. I remember preparing feverishly for my talk (including a last-minute run to Kinko's to print some backup slides!) and was so excited when I was selected to receive the award! It was truly a capstone to my PhD experience and opened doors on my job search since those in the plasma community truly understood what it represented. I have also developed lifelong friendships with other Coburn and Winters Award winners. It's a unique "club" with fun, interesting, and "crazy" plasma scientists, all of whom are inspired by the foundation laid down by Coburn and Winters



(1999) Erwin Kessels
Professor, Eindhoven University, Netherlands

John's papers formed an inspiration for my research but after closely interacting with John in the lab John inspired me deeply as researcher.



(2000) Siva Kanakasapathy
Director, Lam Research

I did not have the fortune to interact with Dr. Coburn directly and yet he touched my professional life in two ways. As the 2000 Coburn & Winters awardee of the AVS, I was thrilled by the significant achievement in my life. It boosts my confidence even to this day when I look back, on days I'm at an uphill task. Later as I joined IBM research and came across references to his contributions internal and externally, it inspired me greatly. I shall fondly look at his namesake award and the legacy it represents.



(2001) Nicolas Fuller
Director, IBM

As a graduate student specializing in low temperature plasma work I learned of John Coburn quite early in my PhD matriculation from my co-advisor Vince Donnelly. In 1998 I attended my first AVS symposium, learning of the award named in his honor and given to one final year student. Naturally I became even more ambitious at this stage aspiring to this possibility. It would be another 3 years before I actually met John while attending the 2001 symposium and delivering my final year presentation. His reception to my talk was comforting and ultimately as I learned later that day that I had in fact won the coveted "Coburn & Winters" award I was overcome with euphoria and humility. We all stand on the shoulders of the accomplishments of others, I thank John, Harold Winters, Vince and others for paving the way...



(2002) Lin Sha
Deputy Director, TSMC, Taiwan

I was very honored to receive the prestigious award. It was beyond just a recognition to me, more importantly, it strengthened my interest in plasma science and inspired me to pursue further research and career.



(2003) Jan Benedikt
Professor, Kiel University, Germany

The John Coburn & Harold Winters Award was for me a great motivation and provided me a strong confidence for my future work. The first contact with the work of John Coburn was through his publications, on molecular beam mass spectrometry on fluorocarbon plasmas from the late nineties. Mass spectrometry was the topic of my winning contribution at the AVS conference and it is, significantly motivated by this award, still the main plasma diagnostic tool we use in my group. The award woke my interest in the work of John Coburn and Harold Winters, where I could realize the significance of their scientific contributions in the field of plasma-surface interaction and characterization of synergistic mechanisms involved in anisotropic chemical sputtering in beam experiments. I used similar beam experiments later to analyze synergistic mechanisms in the plasma inactivation of bacteria and bacterial spores.



(2005) Joe Vech
Director, Lam Research

I had the great fortune to collaborate with John (and Harold) on multiple aspects of my PhD and Postdoc at UC Berkeley. John's insightful discussions not only helped me to understand key aspects of plasma-surface interactions that aided in bridging the gap between my MD simulation work and experimental results, but also helped to build a foundation of knowledge that I draw on frequently in my professional career.



(2006) Lin Xu
Director, Lam Research

Dr. Coburn's pioneering work on the ion energy control with an immersed electrode simply enabled my graduate research on the nanopantography at University of Houston. Amazingly, my first technical training at Lam was given by Dr. Coburn and I was so surprised how down-to-earth he was!



(2007) Joydeep Guha
Head of Marketing, Applied Materials

Coburn and Winters, the name is synonymous to etch and, in all rights, can be used interchangeably. The magnitude of the name is larger than life when we understand that etch is \$10B market in semiconductor manufacturing. The pivotal plot where the effect of Ar ions were shown to multiply the etch rate of Si using XeF₂, laid the foundation of high fidelity pattern transfer on Si devices and marked the era of semiconductor scaling which is propelling the data revolution. Given this backdrop and receiving an award constituted in the name of Coburn and Winters; you can imagine it was a very exhilarating experience. I received this award in 2007 for part of my graduate work on Cl atom recombination theory on surfaces. Getting recognized at this level at the beginning of my career sets a very strong foundation over which I was able to deliver and contribute to the growing complexity of the etch world.



(2008) Emilie Despiau-Pujol
Professor, Universite Grenoble Alpes/CNRS, France

I met John Coburn in 2006 during a short stay at David Graves' lab during my PhD. He used to come to our weekly meetings and always had insightful ideas or comments, always brought in a kind way. His gracious personality and outstanding contribution to the field of plasma etching keeps inspiring me every day.



(2010) Bhavib Jariwala
Manager, Lam Research

The Coburn and Winters award is really special to me since it was at my talk for the award that I met my first boss and hiring manager at Lam Research. After joining Lam Research, I also had the privilege of taking a course that was offered by John Coburn and it was an amazing experience to be learning about plasmas from John himself.



(2012) Joe Lee
Lead Engineer, Albany IBM Research

Chatting with John occasionally about his industry experiences got me interested in looking into IBM Research as a career option.



(2014) Paul Rumbach
Professor, University of Norte Dame

Winning the Coburn award encouraged me to continue on the path of plasma research



(2016) Souvik Ghosh
Intel

I am so grateful for the support and recognition from being a Coburn and Winters recipient. It was truly an honor. Presenting as a finalist was probably the scariest talk I've ever given to date! Winning this award was a major milestone in my career and has given me confidence in my ongoing quest of integrating plasmas with nanotechnology. I have recently joined the semiconductor industry and it's clear how bright the future of plasma science and research is - not only for etching and deposition but also towards keeping Moore's law going strong for 5nm and beyond.



(2017) Hyun-Joon Roh
Samsung Electronics, Korea

The award has helped me to feel the value of my research. Now I'm working at Samsung Electronics as a plasma etch engineer. The experience at the time of receiving the award still give me assurance and pride in work.



(2018) Tahsin Faraz
Eindhoven University, Netherlands

In 2014, as a curious Master's student making his foray into plasma processing, I was first introduced to the pioneering work carried out forty years ago by John Coburn and Harold Winters. Therefore, to win the award given in their honor five years later as a PhD student has been my utmost privilege. I believe the semiconductor manufacturing industry is where it is at the moment due to their work. And there is no doubt in my mind that the next generation of researchers will be inspired by that work to solve upcoming challenges in plasma processing.

