

the YOUNG LEADER

Volume 2, Number 2

The Newsletter of the TMS Young Leaders Committee

WORKING IN INDUSTRY, GOVERNMENT, OR ACADEMIA: A ROUNDTABLE DISCUSSION WITH THE YOUNG LEADER COMMITTEE OFFICERS

In this edition of *The Young Leader*, the officers of the TMS Young Leaders Committee discuss their experiences working as materials professionals in three different sectors: government, industry, and academia. From the government sector, **Ellen Cerreta**, the current chair of the Young Leaders Committee, is a technical staff member at the U.S. Department of Energy's Los Alamos National Laboratory. From industry, **Subhadarshi Nayak**, vice chair of the Young Leaders Committee, is a senior packaging engineer at Intel Corporation. From academia, **Gregory Thompson**, secretary of the Young Leaders Committee, is an assistant professor at the University of Alabama.

Q. Each of you works in a different sector within the materials community: industry, academia, and government. Could you discuss the benefits and drawbacks of working in your sector?

Thompson: I have been a university professor for just over four years. One of the biggest surprises for me was learning how true the cliché is that 'you don't really know something until you teach it.' When you are preparing lectures, you really begin to ask questions, and you are often consulting several text books to develop the best way to present a certain topic. Though that can be time consuming, it can be one of the most rewarding aspects of the job. You are constantly learning. An outcome of this is the ability to engage young adults and help them develop as scientists/engineers and as people. Your product at a university is ultimately people.

One of the advantages of being at a university is the ability to build up a research program in areas you are personally interested in. It can be a quite rewarding and motivating aspect of the profession. But to do research, you often need funding, which can limit you. The secret is to broaden your interest enough so that you can mold your ideas or skill sets to fit topics people want to fund.

If you enjoy doing all the hands-on research yourself, you may not like doing research at a university as a professor. A professor's role is mentoring students and allowing them to develop lab skills. Professors are often busy overseeing the progress rather than doing the day-to-day research experiments. Though I did spend days in the lab when I started, as students become trained and the need for funding new or continuing students develops, much of your time will be spent writing proposals and preparing lectures and presentations for conferences.

Ultimately, being a university professor requires self-motivation.

THE YOUNG LEADER

A Young Leader is any TMS professional member in good standing age 35 and under. The goals of the TMS Young Leaders Committee are to recognize young professionals, develop in them an appreciation and awareness for TMS activities, provide services specifically tailored to young members, and encourage networking with TMS leaders and prominent society members. For more on TMS Young Leader activities, visit www.tms.org/YoungLeaders/YoungLeaders.html.



Ellen Cerreta



Subhadarshi Nayak



Gregory Thompson

Your success is ultimately limited by how hard you work—you can, in some sense, be your own boss. Consequently, you often work hard because you are personally vested in your job.

Nayak: I have been working with Intel Corporation since early 2005. One advantage of working at Intel is that one can choose to stay in the technology leadership pipeline and is not forced to take a management position to climb the corporate ladder.

What motivates me most is that my work is manifest in something that is tangible and useful. I am excited when my knowledge finds some application or solves human problems. Helping people improve their standard of living is a great satisfaction to me. I also understand that the difference technology can make in the developing world is more profound than in the developed world. Making technology affordable is a great mission to live by.

Discipline is the other reason I chose industry. Too many things interest me in life. Given the freedom and relative lack of accountability, it would be easy for me to stray and get lost in academics. However, in industry, we always know what is the most important task we should be working on. The sense of discipline and accountability is important to me for long-term fulfillment.

Cerreta: I came directly from university to work at Los Alamos National Laboratory (LANL) as a post doc and was converted to permanent staff at the end of my appointment. The group with which I work at Los Alamos performs a great deal of basic science research in support of national defense and energy applications. From a science standpoint, my work at LANL has been motivated similarly to my work in graduate school which was driven by engineering concerns in the aerospace sector. However, one major advantage of research at a national lab is that the tools for my work tend to be a little more readily available at the lab. Not to say that I had difficulty completing work in academia, but national labs frequently have unique facilities on site and expertise that comes with these facilities. A few examples in my work are bulk texture measurements that have been made at LANSCE (the Los Alamos Neutron Scattering Center) and mechanical tests performed on explosively shock loaded metals in the dynamic experiments facility.

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ROUNDTABLE (CONTINUED)

Something for which I was not prepared coming from academia to Los Alamos is the emphasis placed on safety and security training at a national lab. While I had some idea that the two were different, orientation to the laboratory, in my case, consisted of almost two straight weeks of safety training and then maybe another month of on-the-job training to use facilities on my own. Students and post docs who have come to work with me have been through this same training and while I know it always feels strange in the beginning, many do come to value the safety lessons learned while working at the lab.

Q. Is it difficult to transition from one sector to another once you have started your career?

Correta: I have not actually tried to transition since working at Los Alamos; however, people do it all the time. I work with many people who have had experience in industry, the military, and academia and have also observed a few people that I work with here at the lab seek opportunity elsewhere—particularly in academia.

Thompson: Most of the time, people come from industry or national labs into academia. I believe several of these individuals who make this transition are surprised at how challenging teaching and proposal writing can be. So beware if you think academia is an ‘easier route.’ Like all jobs, there are positives and negatives.

I believe having some preparatory experience before you come into academia is helpful. This could include positions such as a post-doc or industrial researcher. It will broaden your exposure and give you more research ideas. It can also make you a better instructor by providing you opportunities to bring working experiences into the classroom.

Nayak: Transitioning from sector to sector is not impossible, but not easy either. When you change, you lose out on seniority and

experiences. One thing that can help you make the change from sector to sector is to establish yourself in a field renowned beyond your company and sector. Professional societies like TMS are great places to achieve that. As I said, many great teachers have extensive industrial experience. I think this is an asset especially in engineering, because after all engineering is a utilitarian body of knowledge.

Q. What are some things a young professional might want to consider when deciding which career path to pursue?

Thompson: The first few years in a tenure-track position can be very daunting. Teaching, and the preparation that goes with it, will consume a lot of time. Mixed into that is proposal writing (which you may or may not have had extensive experience in) and training graduate students. Be prepared to write a lot. Professors are constantly writing the next proposal or editing student research papers. If you don't enjoy writing, you probably will not like academia. Lastly, you must be self-motivated and persistent.

Nayak: I think it is very important for individuals to understand what really makes them happy. One can and should strategically try to look out for things they love to do no matter what sector they are in. More often than not, it is possible and it is good for personal satisfaction, happiness, and career growth. I love to teach and, therefore, I look out for opportunities to present educational materials to groups and mentor members of my team. Each sector does have its advantages and drawbacks. For example, in industry you are working on real issues and practical problems. The flip side of that is that you are often required to do monotonous work to achieve your goal. It may actually appeal to some as a challenge to use their creativity to make the task automated or at least more interesting. So, it is important to understand what you are good at and what you really want to do.

TMS ANNOUNCES TWO YOUNG PROFESSIONAL AWARD WINNERS

The TMS Honors and Awards program recognizes distinguished achievements in the materials field, service to the materials community and/or the society, and, in some cases, the promise of a distinguished career. Two awards specifically established to encourage early career professionals in their work are the Robert Lansing Hardy Award and the Early Career Faculty Fellow Award. TMS has recently announced winners for these two awards.

Early Career Faculty Fellow Award

Established in 2006, this new award not only recognizes achievements by early career professionals working in the academic community, it also provides opportunities for travel to TMS conferences and for symposium organizing and presentation experience.

The 2008 award goes to **Katsuyo Thornton**, an assistant professor of materials science and engineering at the Massachusetts Institute of Technology. Thornton holds a Ph.D. from the University of Chicago from the Department of Astronomy and Astrophysics. Her research focus is on computational studies of evolution of microstructures and their effects in a wide range of materials, including metals, semiconductors, ceramics, and biomaterials.



“With this opportunity, I am to apply my interdisciplinary background to increase the visibility of computational materials research as well as to facilitate close collaborations between experimentalists and theorists,” said Thornton. “I am very excited to take a leadership role in setting the future direction of TMS through symposium organization and committee participation.”

As part of the award Thornton will deliver the young leader tutorial lecture at the TMS 2008 Annual Meeting in New Orleans, Louisiana, and will help to organize a symposium for the TMS 2009 Annual Meeting in San Francisco, California. The award pays for travel and registration costs to attend both conferences.

Robert Lansing Hardy Award

This award is given each year to a TMS member under the age of 35 who shows exceptional promise for a successful career in the broad fields of metallurgy and materials science.

This year's award goes to **Ken Gall**, professor of mechanical and materials engineering at the Georgia Institute of Technology. Gall holds a Ph.D. from the University of Illinois in mechanical engineering and co-founded the medical device company, MedShape.



“It is a great honor to receive this award and be placed among some of the world's top researchers in materials science. Winning this award will further motivate me to perform great research,” said Gall. “TMS is a great society, and their stature in the community is very high. I hope to continue my involvement in TMS to broaden my own experience and also to contribute to the growth of other scientists.”

2009 Awards Now Accepting Applications

Applications for the 2009 Early Career Faculty Fellow Award and nominations for the 2009 Robert Lansing Hardy Award are now being accepted. October 31 is the deadline for both awards. For more information, visit the “Society-Level Awards” section of the TMS Honors and Awards web site, www.tms.org/Society/honors.html.