

# Gaining a Global Perspective through the TMS Young Leader International Scholar Program

Michele V. Manuel



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**—Michele Manuel,  
2014 TMS/JIM Young  
Leader International  
Scholar Award  
Winner**

I was honored to be selected for the 2014 Young Leader International Scholar Award, supported by the TMS Foundation. This provided me the opportunity to visit the Japan Institute of Metals and Materials (JIM) 2014 Annual Spring Meeting in Tokyo, Japan. The award allowed me to meet with

collaborators and colleagues as well as see friends, both old and new. The timing was perfect—It was March and the beginning of cherry blossom season, so the streets were lined with trees clad in pink. It was absolutely beautiful. This visit also allowed me to flex my Japanese.

I am an assistant professor in the



## Contribute to a World of Ideas

Giving promising young minerals, metals, and materials scientists and engineers an opportunity to develop scientific collaborations across global cultures is a goal of the TMS Young Leader International Scholar Program.

Since 2005, both TMS and the Japan Institute of Metals and Materials (JIM) have selected young professionals, through a competitive review of their accomplishments, to travel to the other organization's annual meeting to present scientific papers and engage in learning and networking activities. A similar effort was launched in 2013 with the Federation of European Materials Societies (FEMS). These exceptional learning and professional development opportunities for the TMS representatives chosen for this award have been made possible by the TMS Foundation since the program's inception.

“Finding the materials solutions to some of society's greatest challenges requires that scientists and engineers work across continents and cultures to pool their knowledge and share perspectives. I can't think of a better way to help build those bridges than with the enthusiasm and talents of our young professionals,” said Hani Henein, TMS President and TMS Foundation Trustee. “Making it possible for some of the best and brightest among the rising leaders in our profession to gain exposure and experience on the international stage is critical to ensuring the future vitality of the international minerals, metals, and materials community. I am proud that the TMS Foundation has made such an impactful program as the Young Leader International Scholar Program possible. My hope is that this effort will only continue to grow, supported by TMS members who share the foresight of those who established this program in the first place.”

To find out how you can ensure that the TMS Young Leader International Scholar Program continues to lay the groundwork for important international collaborations, visit the TMS Foundation website at [www.TMSFoundation.org](http://www.TMSFoundation.org) to learn more and to make an online donation. For questions or to make a donation by phone, contact Mary Samsa, TMS Foundation & Public Affairs Manager at [msamsa@tms.org](mailto:msamsa@tms.org).

Department of Materials Science and Engineering at the University of Florida where I work to employ materials design strategies on a range of materials classes, including magnesium and shape memory alloys. My visit included meeting with experts in both of my research areas at the National Institute of Materials Science (NIMS) in Tsukuba and the University of Tokyo, in addition to attending the JIM conference.

My first visit upon arrival in Japan was to NIMS. I was met at the Tsukuba train station by Yoko Yambe-Mitarai, who drove me to the institute by car. At NIMS, Mitarai introduced me to the institute's history and layout. Next, I gave a seminar on a thermodynamic approach to magnesium alloy development—work that is supported by the National Science Foundation under the CAREER award program. The opportunity to present our research methodology to the top scientists in the world in an intimate venue was priceless. As the incoming chair of the TMS Magnesium Committee and simultaneously the organizer of the 2015 TMS Magnesium Technology Symposium, this event was tremendously helpful in connecting to important players in magnesium research.

After the seminar, I met with Kazuhiro Hono and his research group, as well as with Taisuke Sasaki, with whom I have collaborated and co-authored a paper. I was also able to visit the laboratory of Hidetoshi Somekawa, who is working in magnesium alloy development. At the close of my tour, I met with Julian Rosalie and Alok Singh, both of whom I have worked with closely on the TMS Magnesium Committee. Additionally, I was able to discuss and confer with Singh about action items for the upcoming 2015 Magnesium Technology Symposium, which he is co-organizing with me.

In between my visit to NIMS and the JIM meeting, Toru Okabe of the Resource Recovery and Materials Processing Engineering Laboratory at the University of Tokyo graciously hosted me. I was able to tour the university and his laboratory dedicated to the primary processing of titanium and rare metals. This was truly a treat! It was my first exposure to the area of primary processing. I gained deeper



understanding of the intricacies of the process and was humbled by its difficulty in both science and methodology.

During the tour, I was able to study the new titanium tile being used to replace ceramic roof tiles of historical Japanese temples because of its durability and light weight. I also left with some wonderful gifts, including a copy of the titanium spoons made in Okabe's laboratory that were given to the Emperor of Japan and a double-walled vacuum-sealed titanium cup that has incredible thermal insulation and heat retention. These items are currently sitting in my office to amaze and educate students.

Later in the week, I attended the JIM meeting where I first gave a presentation on the design of precipitation-strengthened, high-performance shape memory alloys—work that is being supported by a NASA Early Career Faculty grant. Before my presentation, I was honored with a certificate acknowledging my participation in the TMS/JIM Young Leader International Scholar Program. I gave my presentation to several shape memory alloy experts, including Hideki Hosoda from the Tokyo Institute of Technology and Shuichi Miyazaki from the University of Tsukuba and former president of JIM. I was also honored to give a presentation at the Gender Equality Committee lunch on the status of female researchers in the United States. I provided information regarding historical statistics, recent studies, and

Making the 2014 TMS/JIM Young Leader International Scholar Program a success were (left to right): Toru H. Okabe, University of Tokyo, and international scholar host; Yoko Yamabe-Mitarai, National Institute for Materials Science, and international scholar host; Michele Manuel; Minoru Nishida, Kyushu University, and JIM Annual Meeting Committee chair; Yoshimasa Kajiwara, JIM Secretary General.



Michele Manuel shares her work on shape memory alloys at the JIM Annual Spring Meeting.



recommendations for retention and promotion of female

scientists and engineers. This was great preparation for the First TMS Summit on Creating and Sustaining Diversity in the Minerals, Metals, and Materials Professions in July, of which I was an organizer.

I was also treated as a guest at the JIM Awards ceremony. I was introduced to the board of JIM and was privileged to hear a talk from the president of Nippon Steel. It was very evident from the photos that were taken that I had a very American flavor to my attire, as I was the only attendee wearing an outfit that wasn't black. It definitely helped me to stand out and I was easily recognizable!

I greatly appreciate the opportunities afforded me by the TMS/JIM Young Leader International Scholar Award. This was a tremendously rewarding experience that resulted in making critical connections and developing new friendships that will

last my entire career. Since this visit, I have made it my personal goal to visit Japan more frequently and to also follow up on opportunities for collaboration. My hosts were incredibly gracious, and went out of their way to make me feel welcome. I would particularly like to thank those who spent a significant amount of time organizing my schedule—Yoko Yamabe-Mitarai, Yoshimasa Kajiwara, Julian Rosalie and Toru Okabe. I am truly thankful to TMS and the TMS Foundation for making this visit possible.

**Michele V. Manuel is an assistant professor at the University of Florida. In addition to being named the TMS/JIM Young Leader International Scholar in 2014, she also received the 2014 TMS Early Career Faculty Fellow Award. For additional information on these and other TMS awards for young professionals, visit the TMS Honors and Awards website at [awards.tms.org](http://awards.tms.org) or contact Deborah Price, TMS Awards and Recognition Specialist, at [price@tms.org](mailto:price@tms.org).**

## Meet 2014 JIM Representative, Hiromichi Fujii



Hiromichi Fujii

Hiromichi Fujii, Assistant Professor, Department of Materials Processing, Tohoku University, was selected by JIM as its representative in the 2014 Young Leader International Scholar Program. JIM supported Fujii's travel to the TMS 2014 Annual Meeting, February 16–20, in San Diego, California, where he presented "Microstructure and Mechanical Properties in Dissimilar Joint between Al Alloy and Cu by Ultrasonic Welding." Fujii also visited Brigham Young University as part of his international scholar experience to learn more about its work in solid state welding processes and to develop relationships for future collaborations in welding metallurgy.

