

Member News

Updates on friends and colleagues in the materials community

A Tribute to Theodor Joseph Lehner

By John Floyd



Theo Lehner

Theo Lehner was the Distinguished Lecturer for the Extraction & Processing Division of TMS in 2012. Sadly, he died on June 17, just three months after delivering his address and receiving this prized award at the TMS 2012 Annual Meeting in Orlando.

Theo spent all of his working life as an extractive metallurgist in Sweden, where he was a leader in research, operations, and development of industrial plants. He became senior metallurgist at Boliden's Ronnskar smelter in northern Sweden in 1982, and took a leading role in the company's technical managerial team, holding such positions as chief process metallurgist, manager of research and development, and manager of business development during his 30-year career there. His metallurgical legacies include substantial improvements to the environmental aspects, labor and process efficiency, and economics of smelting operations for both mine products and recycled materials.

He became a world leader in his pro-

fession through his technical papers and lectures, as well as organizing and participating in conferences, and collaborating with professionals in many countries. He emphasized in his papers the essential need to learn from the past and develop the wisdom to ensure a sustainable industry for the benefit of present and future generations.

Theo was well known in U.S. metallurgical circles as a very active member of TMS. He served continuously on the Pyrometallurgy Committee from 1989, taking on the role of chair in 1995. He was also chair of the organizing committees for the International Symposium on Injection in Process Metallurgy in 1990, General Pyrometallurgy in 1992, and the International Symposium on Co-products and Minor Elements in Non-Ferrous Smelting in 1995.

Theo was inspirational in his zest for life and warm and friendly personality. He will be hugely missed by his family and always remembered with appreciation and fondness by his friends and colleagues in the United States and around the world.

Editor's Note: This article was excerpted from a much longer tribute, which can be viewed in its entirety at <http://materialstechnology.tms.org/mas/article.aspx?articleID=4655>.

Elizabeth Holm Joins CMU Faculty



Elizabeth Holm

Elizabeth Holm, TMS vice president, began her work as professor in the Materials Science and Engineering Department at Carnegie Mellon University (CMU) in September. Immediately prior to this appointment, she was a distinguished member of the technical staff at Sandia National Laboratory. With more than 20 years of experience and scholarship in materials modeling,

Holm served on the U.S. National Academies National Materials Advisory Board that generated the report on integrated computational materials engineering now widely considered the forerunner of the U.S. Materials Genome Initiative (MGI) announced by President Barack Obama in 2011. Her research interests include the theory and modeling of microstructural evolution in complex polycrystals, the physical and mechanical response of microstructures, and the wetting and spreading of liquid metals. In her new role, she will be leading CMU's research efforts related to the MGI.

Jim Williams Named Distinguished Research Professor



Jim Williams

Jim Williams has joined the College of Engineering faculty at the University of North Texas, where he was named a distinguished research professor with a part-time appointment in the Department of Materials Science and Engineering. Most recently, Williams served on the faculty of Ohio State University, where he also held the position of Dean of Engineering. He was also a faculty member at Carnegie Mellon University for 13 years, including six years as the dean of the College of Engineering.

In addition to his extensive experience in academia, Williams worked in the aerospace industry for companies such as Boeing, Rockwell and GE. He has authored or coauthored more than 250 publications and is a member of the U.S. National Academy of Engineering.

Aalto University Announces Appointment of Markus Reuter



Markus Reuter

Markus Reuter, director of Technology Management for Outotec, was recently appointed adjunct professor at Aalto University, School of Chemical Technology, Department of Materials Science and Engineering, Finland. His teaching focus will be systems engineering with application to recycling, as well as simulation and design for recycling and sustainability. Reuter is also Professorial Fellow of Sustainable Technology at the University of Melbourne, Australia.



TMS Member Profiles

Meet a Member: Marc De Graef Explores the Art and Science of Making Music

By Lynne Robinson

From bluegrass to Bach, Marc De Graef has experimented with the versatility of guitar playing since age 16. “The thing that’s special about guitars is the fact that there are so many different styles of music that you can play,” said De Graef, professor of Materials Science and Engineering at Carnegie Mellon University. “While the learning curve can be steep at times, getting a hang of the basic chords is not too hard. If you know a dozen chords, you can play a whole lot of songs.”

For his part, De Graef did not stop at strumming chords, eventually turning to finger picking and classical music as his primary interests. His early guitar skills were almost completely self-taught, drawing on some basic music reading techniques that he picked up in middle school. In graduate school, he began taking formal lessons with a musician named Kostas Chatzopoulos, as well as playing about 100 small concerts with Chatzopoulos in local bars.

Among other techniques, Chatzopoulos taught De Graef how to approach challenging pieces originally composed for lute by J.S. Bach. “I’ve been working for several years now on Bach’s *Chaconne in D minor* from the *Violin Partita No. 2*. I think this is probably the most beautiful piece of music ever written, and it is also devilishly difficult,” said De Graef.

With the demands of starting a career and family after graduate school, practice time became elusive for De Graef. Once he secured tenure at Carnegie Mellon, however, he began bringing a guitar to his office with the intent of practicing a little each day. He also recently played in two concerts in Belgium organized by Chatzopoulos—his first public performances in about 20 years. “It was great fun to be on the stage again after so many years—and a bit nerve racking as well,” he said.

De Graef observed that it was inevitable that his fascination with music

would eventually meld with another of his life’s passions—mathematics. “I think it is only natural to join math and music—both fields have a lot of inner beauty, and to combine them is really very interesting and satisfying to me,” he said. This interest, in fact, led to a scholarly collaboration with Norman Cook, psychologist and professor at Kansai University, Japan.

De Graef first became acquainted with Cook’s work from an article in *American Scientist* that discussed his attempts to model why certain three-tone chords were perceived to sound better than others. “I was drawn to the article because of the illustrations,” De Graef said. “It occurred to me that the illustrations could be improved by applying certain symmetries to them.”

De Graef recalculated all of the article’s computations, displayed them with what he thought should be the proper symmetry and sent the new illustrations to Cook. Since that initial interaction, the two have presented a poster, *Modeling the Sonority of Chord Progression*, at a conference of the Society for Music Perception and Cognition and are planning a full-length paper. (To view the poster, visit De Graef’s website at <http://neon.materials.cmu.edu/degraef/degraef.html>).

Although De Graef says both his scientific and artistic explorations of music have been extremely fulfilling, he stresses that it has all been “just for fun, not really to accomplish anything grand.”

“I like playing for other people in more of an impromptu recital setting, rather than a formal concert,” he said. “Just a bunch of friends listening, out on a deck somewhere, while sipping beer or wine...”

Each month, *JOM* profiles a TMS member and his or her activities both in and out of the realm of materials science and engineering. To suggest a candidate for this feature, contact Lynne Robinson at lrobinson@tms.org.



(Above) De Graef (second from the right) joined a bluegrass band called Duelin’, in college, playing about 30 concerts over a three-year period. (Left) De Graef performs *Bach’s Air (on a G string)* during a 2011 concert in Belgium. To enjoy his performance, go to <http://www.youtube.com/watch?v=QCPqI3vFkNg>.