



Letter

Lawrence Eugene Murr, recipient of the 2026 JMRT Senior Career Award



The JMRT Senior Career Award, established in 2022, is bestowed yearly to a scholar of global reach who has made seminal contributions in the materials field. Previous recipients were D. Raabe (Germany), T. Langdon (UK), K. Lu (China), and R. Ritchie (US). Professor L. E. Murr, the 2026 recipient, was chosen by vote by the JMRT Board of Editors (see Fig. 1).

Lawrence Eugene Murr was born in 1939 in Pennsylvania Dutch country (read Deutsch, meaning German) of this ancestry. He had an outstanding career spanning over sixty years. In his early youth he already demonstrated scientific curiosity and determination to conduct experimental research into the effect of electric fields on plants. This uncanny ability to identify important scientific problems and to study them using ingenious experimental approaches has been the hallmark of his career.

He started his professional life at Albright College where he received a B.Sc. degree as part of a 3-2 program with Pennsylvania State University, where he got his undergraduate B.S. E. E. and graduate M.S. and Ph.D. (Solid State Science) degrees. Upon completion of his doctorate, he joined the University of Southern California, but it was at the New Mexico Institute of Mining and Technology and the University of Texas at El Paso that he found the ideal environment to pursue his scientific ideas free of the impediments of many academic institutions.

At New Mexico Tech he founded the Sullivan Center, the largest in situ facility for the study of bacterial leaching of copper ores. He coupled this with characterization of the bacterium *Thiobacillus ferrooxidans* and a high-temperature *Sulpholobus micro-organism*.

He also conducted shock hardening experiments by personally going to the explosive facilities located in the neighboring mountain, preparing the Dupont Detasheet charges, detonating them, and using his superb transmission electron microscopy skills to characterize the micro structural changes.

In the 1980s ceramic superconductors were discovered and intensively studied. Prof. Murr, during his brief sojourn at the Oregon Graduate Center, embarked on a program to densify these powders, by inserting them into copper tubes and aluminum alloy plates and applying explosive charges to establish continuity between the particles, a requisite for electrical conduction. The program, in conjunction with industry, met with considerable success, including the founding of Monolithic Superconductors, Inc. in 1988; but the technological applications of the 123 superconductors did not materialize.

He subsequently joined the University of Texas at El Paso, returning to his beloved Southwest. There, he started research programs in friction-stir welding, additive manufacturing, and nanotechnology. He was one of the first to alert the community about the health hazards of nanoparticles. In friction-stir welding, he correctly identified the mechanism of dynamic recrystallization for playing an important role in bonding. He was among the first to develop porous biomedical implants

in 2008 using electron beam melting.

These amazing accomplishments were published in close to 1000 papers which yielded an H Index above 100 (google scholar). It is admirable that he accumulated considerable administrative duties in addition to his research and teaching. He was department head at New Mexico Tech and UTEP, and Vice President for Research and Academic Affairs at the Oregon Graduate Center.

On a lighter note, but demonstrating his amazing creativity, he visited Cancun, Mexico, in 1990 and watched steel drum bands performing their percussive rhythms. There, he met Ellie Mannette, a native of Trinidad & Tobago, who is credited as the “father of the Caribbean steel drum.” The sounds intrigued him and he decided to study the elastic properties and structure of the steel used in the drums. This led him to create a steel drum ensemble at UTEP which is still in existence and performing. His studies led to the discovery that there is a narrow band of carbon contents and heat treatments that yield the best sounds. This revolutionized the construction of Caribbean steel drums.

Marc Meyers had the opportunity to visit him in New Mexico and staying at his house in 1975. The superhuman productivity of Larry Murr is to a large extent due the support of his wife, Pat, and kids, Kyle and Kim. Larry would quietly sit at the dining room table while his family had breakfast or watched TV. For breakfast, he had only a couple of brownies. It was only accomplishing more than most of us all day long, that he would drive to Socorro in his beloved battered Ford Pinto. His example of discipline was a life-long inspiration for Marc Meyers.

His work on shock loading and launching of the EXPLOMET conference series at New Mexico Tech laid the foundation for the Center for Explosive Technology Research which attracted researchers globally. It later merged with the Terminal Effects Research and Technology group (TERA) to form the New Mexico Energetic Materials Research and Testing Center (NMERTC), a large-scale enterprise with over one hundred employees, over fifty sites, and occupying an area of 100 km² embedded in the historic M Mountain behind NM Tech's campus.

After retiring from UTEP, he moved to Arizona but continued fully engaged in research and book writing. He has been immensely important to JMRT, being an editor for 14 years. He is also Co-Editor -in-Chief of JMST, an IMR (Institute of Metal Research)-originated journal that is the premier materials journal in China. Restless, he assumed the editorship of a new journal, Journal of Materials and Manufacturing Engineering, that has been successfully launched in Australia.

His books cover a broad range of topics and have been received with global acclaim: transmission electron microscopy [Electron Optical Applications in Materials Science, McGraw-Hill, 1970; Electron and Ion Microscopy and Microanalysis, Marcel Dekker, 1982; 2nd Edition, 1991], interfacial phenomena in metals [Interfacial Phenomena in Metals and Alloys, Addison-Wesley, 1975], electronic properties of materials [Solid-State Electronics, Marcel Dekker, 1978], and a

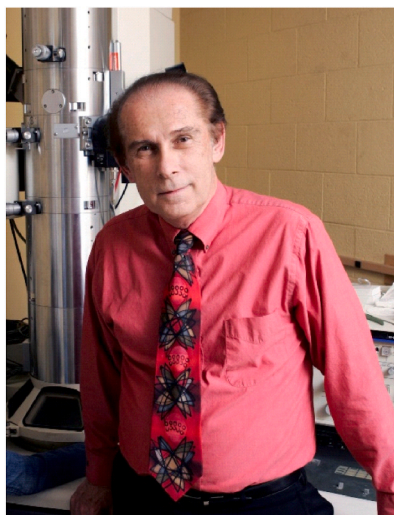


Fig. 1. Professor Murr in front of his favorite research instrument, the transmission electron microscope.

Handbook of Materials Structures, Properties, Processing, and Performance Springer, 2015. This magnificent opus is supplemented by approximately ten edited or co-edited books on extractive metallurgy [Metallurgical Applications of Bacterial Leaching and Related Microbiological Phenomena, Academic Press, 1978], solar materials science [1980], explosive processing {Shock Waves for Industrial Applications, Noyes, Publications, 1988 }, and five EXPLOMET conference proceedings [from 1980 to 2000].

He is the recipient of numerous distinguished research and teaching awards including the TMS 2007 Educator Award, the 2007 John S.

Rinehart Award for global leadership in shock and high-strain-rate phenomena, the 2008 H Clifton Sorby Award for lifetime achievement in metallography, the 2009 Albert Easton White Distinguished Teaching Award of ASM International, the 2010 Piper Professor Award (Texas), the 2014 Alpha Sigma Mu Materials Science Distinguished Life Member Award, and Lee Hsun Distinguished Lecture Awards of the Shenyang National Laboratory for Materials Science, Institute of Metal Research, Shenyang, China (2010 and 2016).

2026 is the third visit of Prof. Murr to Brazil. He was in Rio de Janeiro in 1974 and in Sao Paulo in 2014; thus, this marks the fiftieth anniversary of his first visit.

The JMRT/ABM plenary lecture entitled- “Metallurgy and Materials Science Fundamentals Applied to Additive Manufacturing of Metals and Alloys: A Contemporary Overview” and his monumental opus are a testament to his admirable intelligence, dedication to work, and singular pursuit of knowledge in materials. It is hoped that it will serve as an example for future JMRT authors and as an inspiration for generations of students and professionals.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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