



John J. Jonas, 2017 Acta Materialia Gold Medal Recipient



The recipient of the 2017 Acta Materialia Gold Medal is Dr. John J. Jonas, Henry Birks Professor Emeritus, Department of Mining and Materials Engineering, McGill University, Montreal, Canada. Dr. Jonas was born in Montreal and graduated from McGill University with a bachelor's degree in Metallurgical Engineering in 1954. After working for one year at the Steel Company of Wales in Port Talbot, he attended Cambridge University on an Athlone Fellowship and received a Ph.D. degree in Mechanical Sciences in 1960. On returning to Montreal, he began teaching "mechanical metallurgy" at McGill and built up a research laboratory that includes a number of specialized testing machines and is particularly well equipped for experimental investigations in the field of high temperature deformation.

Professor Jonas' most important scientific contributions are related to determining what happens to sheet steel when it is red hot and flying through a rolling mill at 100 km/hr. The basic phenomena involved include dynamic and post-dynamic recrystallization, dynamic transformation and retransformation, and the dynamic and strain-induced precipitation of carbonitrides. He and his co-workers have made seminal contributions to all three of these areas of research. An important related innovation was establishment of the laboratory method of determining the T_{nr} (temperature of no-recrystallization) during rolling, a procedure that is now employed in rolling mills worldwide. This work has resulted in major improvements in the understanding and control of the microstructural changes taking place during steel processing and has led to more accurate computer models for the control of industrial rolling mills.

In addition to his research in ferrous metallurgy, Professor Jonas has made numerous contributions to the understanding of the deformation behavior of non-ferrous metals. These have included explanations of variant selection of twins in Mg and Ti, of the causes of plastic instability and flow localization during metal forming, and of texture development during deformation, annealing and phase transformation.

He has received numerous awards for this work, including the Réaumur and Gold Medals of the French Metallurgical Society,

the Hatchett Medal of the Metals Society (U.K.), the Airey, Dofasco and Alcan Awards of the Canadian Institute of Mining and Metallurgy, the Gold Medal of the Canadian Metal Physics Association, the NSERC Award of Excellence, the Killam Prize for Engineering, the Michael Tenenbaum Award of the American Institute of Metallurgical Engineers, the Hunt Silver Medal of the US Iron and Steel Society, the Barrett Silver Medal and G. Macdonald Young Award of the American Society for Metals, the Alexander von Humboldt Research Award (Germany), and the Yukawa Silver Medal and two Sawamura Bronze Medals of the Iron and Steel Institute of Japan. Professor Jonas has been elected a Fellow of the American Society for Metals, Royal Society of Canada, Canadian Academy of Engineering, Canadian Institute of Mining and Metallurgy, and Hungarian Academy of Sciences. He is an Honorary Member of the Iron and Steel Institute of Japan and of the Indian Institute of Metals. He was made an Officer of the Order of Canada in 1993, a *Chevalier* of the Order of Quebec in 2000, and received the Quebec prize for science (Prix du Québec - Marie Victorin) in 1995. He has served as a visiting professor in numerous countries, including Argentina, Australia, Belgium, Brazil, Britain, China, France, Germany, Holland, Hungary, India, Iran, Israel, Japan, Mexico, South Africa, South Korea, Spain, Taiwan, the USA and the USSR.

In 1985, Dr. Jonas was appointed to the CSIRA/NSERC Chair of Steel Processing at McGill, a position which was funded jointly by the Canadian Steel Industry Research Association and the Natural Sciences and Engineering Research Council of Canada. In this capacity, he worked closely with the Canadian steel industry, and collaborated in the solution of a number of important processing problems. He and his colleagues have been granted five sets of international patents associated with steel rolling, three of which have been assigned to the sponsoring companies.

He has trained over 200 students and research fellows in the specializations outlined above and he and his students have published more than 800 papers, 100 of them in Acta and Scripta Materialia. His current *h-index* (Hirsch number) is 83 and he has more than 25,000 citations to his credit.

The Acta Materialia Gold Medal, established in 1972, is awarded annually by the Board of Governors of Acta Materialia, Inc., with partial financial support from Elsevier, Ltd. Nominees are solicited each year from the Cooperating Societies and Sponsoring Societies of Acta Materialia, Inc., based on demonstrated ability and leadership in materials research. Dr. Jonas will receive the Gold Medal at the TMS Annual Meeting in San Diego in March 2017.