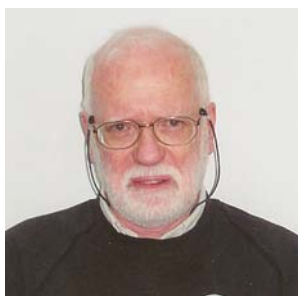


Advanced Materials and Characterization: Proceedings of the Brandon Symposium

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This Special Issue is a collection of papers, based on the invited lectures presented at *The Brandon Symposium: Advanced Materials and Characterization*, held within the framework of the 2006 TMS Annual Meeting & Exhibition,

March 12–16, 2006, San Antonio, Texas, USA. The Brandon Symposium and the papers within this Special Issue are in honor of David Brandon's 70th birthday, and his unique contribution to Materials Science over the course of his rich academic career.

David Brandon was born on January 14, 1935 in England. After completing his undergraduate studies in 1959, he continued at Cambridge as a PhD candidate in Jack Nutting's electron microscopy research group. This was an exciting period of time at Cambridge, with discussions with eminent scientists such as Neville Mott, Max Perutz, and Peter Hirsch, and visits by Alfred Seeger, Charles Frank and Jacques Friedel. Under Nutting, David worked with Robin Nicholson and Gareth Thomas on transmission electron microscopy (TEM) of thin films. David obtained his PhD in Metallurgy in 1959. His doctoral work involved pioneering thin-film electron microscopy of ferrous materials.

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Upon completion of his graduate work, Jack Nutting and Alan Cottrell asked David to take charge of the development of a field-ion microscope (FIM) at Cambridge. During this time David worked on coincidence site lattice modeling of grain boundaries in metals. This led to the Brandon Criterion for special boundaries. He made pioneering contributions on multiple ionization in field evaporation, and advised his first set of PhD students (Piers Bowden, Mike Wald, Mike Southon, Brian Ralph, and Srinivasa Ranganathan).

In 1963 David joined Walter Bollmann as a Senior Scientist at Battelle Memorial Institute in Geneva, to work on radiation damage studies. He wrote several papers on computer simulation of field-ion images with A. J. W. Moore and A. J. Perry. In 1966 David and his family immigrated to Israel, where he helped to found the Department of Materials Engineering at the Technion. His early endeavors at the Technion were focused around the installation of the Technion's first TEM, and the training of graduate students in its use. Dan Shechtman was amongst his first PhD students at the Technion, who at that time worked with David on dislocations in Ti.

While David's background was in deformation mechanisms and grain boundaries in metals, already at this stage he began to expand his fields of interest to anodic oxide films. In the 1980s David again expanded his field of interest to the correlation of mechanical properties with microstructure and the microstructural evolution of ceramics. Initial studies focused on zirconia with PhD student Rachman Chaim, but were soon expanded to alumina and alumina-based ceramic systems.

In the 1990s David revisited issues at grain boundaries and interfaces in alumina and alumina-based

composites using high resolution transmission electron microscopy (HRTEM) and analytical electron microscopy with PhD students Wayne Kaplan and Igor Levin.

David's varied interests have already led to more than 150 publications, and four text-books. He has been a consultant to industries in Israel and abroad, and an active member of the Board of Governors of *Acta Materialia* (1997–2005). In 2004 David retired with the status of Professor Emeritus, but continues to be involved in teaching and research at the Technion.

It is a pleasure to thank R. Chaim, Manfred Rühle, David Seidman, Danny Shechtman and Tadao Watanabe for their guidance as members of the Symposium Organizing Committee. We are also grateful to the President and other members of TMS for hosting this event. A special word of thanks is due to Ms. Christina Raabe for her help in all aspects of the organization. FEI, JEOL, Oxford Nanoscience and Zeiss are thanked for their generous corporate sponsorship. Prof. Barry Carter is thanked for suggesting that a Special Issue of the *Journal of Materials Science* will be a tangible tribute to the contributions of David to materials science.

Selected Publications

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8. Levin L, Kaplan WD, Brandon DG, Wieder T (1994) *Acta Metal Mater* 42:1147
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13. Brandon DG, Kaplan WD (1999) *Microstructural characterization of materials*. Wiley, Chichester