Keynote speaker

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Title of the Presentation: New Results on Electromigration Modeling – A Departure from Blech's Theory

Abstract

We have recently developed a multi-physics-based general coupling theory for electromigration (*J. Appl. Phys.* 125, 105101, 2019). The results show the mechanical stress is significantly less than the existing literature solutions. In addition, the vacancy concentration gradient plays an important role in formulating electromigration problems. We revisited Blech's theory and a new threshold criterion for electromigration failure has been developed. This is a major departure from the Blech's theory, and the preliminary results show the predicted results are consistent with the Blech's original test data.

Brief Bio

Xuejun Fan is a Regents' Professor of Texas State University System, and a Mary Ann and Lawrence E. Faust Endowed Professor at Lamar University, Beaumont, Texas. Dr. Fan is an IEEE Fellow, and an IEEE Distinguished Lecturer. He currently serves as a member-at-large of the IEEE Electronic Packaging Society (EPS) Board of Governors. Dr. Fan gained significant experience in the microelectronics industry between 1997 and 2007, at IME, Philips and Intel. His current areas of expertise include characterization, modeling and reliability of materials, components, and systems in micro- and opto-electronics manufacturing and packaging. Dr. Fan received the Outstanding Sustained Technical Contribution Award in 2017, and Exceptional Technical Achievement Award in 2011, from the IEEE Electronic Packaging Society. In his early academia career in China, Dr. Fan was the recipient of a Young Faculty Award from the Fok Ying-Tung Education Foundation in 1994, and the nominee for the title of "Ten Outstanding Youth of China" in 1991. He was one of the youngest full professors in China at the age of 27 at Taiyuan University of Technology in 1991.