2024 年 9 月 17 日

日本材料学会九州支部特別講演会のお知らせ

台湾の National Cheng Kung University（国立成功大学）の Prof. Tz-Cheng Chiu の来日に合わせ、大分大学にて、下記のように特別講演会を開催致します。

皆様、奮ってご参加ください。

記

日時： 令和 6 年 10 月 3 日（金）10:00～11:30

場所： 大分大学旦野原キャンパス　理工 9 号館1階多目的研修室

（〒870-1192 大分市旦野原 700 番地）

講演者： Prof. Tz-Cheng Chiu

(Department of Mechanical Engineering, National Cheng Kung University)

講演題目：Application of Fracture Mechanics in the Mechanical Reliability of Interfaces in Advanced Microelectronic Components

アブストラクト：

Driven by the needs in high performance computing and artificial intelligence applications, advanced 2.5-D microelectronic packaging technology based on Si chiplets is currently under rapid development. The 2.5-D integration scheme typically uses either polymer-dielectric based redistribution layer (RDL) or silicon interposer-based interconnect for allowing fast electrical connection between the logic processor and the high-bandwidth memory (HBM). From the structural perspective, a common feature of the 2.5-D package is the vast amount of materials interfaces such as Si-epoxy molding compound (EMC), Si-underfill, Cu-polyimide (PI). Because of the intrinsically weak adhesions of these interfaces, debonding crack growth during fabrication and in-use conditions is one of the critical failure modes of the advanced 2.5-D package. Quantitative estimations of the interface adhesion and the crack growth driving force are therefore essential for considering the risk of debonding failure. In this presentation, fracture mechanics based experimental-numerical procedures for evaluating the debonding risks of materials interfaces are discussed. Topics including vapor-pressure driven pop-corning failure under solder reflow process and viscoelastic and viscoplastic deformations of the RDL interconnect structure on the energy absorptions during debond growth are discussed after a brief overview of the theoretical backgrounds.

以上

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