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Poster-Session

Heat transfer layers for reactive Bonding – Challenge and Opportunity

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Integrated reactive multilayer systems (iRMS) enable the low temperature integration of heterogeneous material without external heating of the substrates. These multilayer thin films generate het upon reaction. While the related packaging technology enables mounting and hermetic encapsulation of chips, wafers and components, the integration of free standing electrical contacts such as TSV cannot yet be achieved. Due to the self-propagating exothermic reaction, all parts of the iRMS have to be connected to ensure an stable ignition and reaction. In order to form electrical contact, the energy generated by the reaction has to be transferred from one free standing stack to another. One promising approach is the integration of isolating heat transfer layers (HTL).
The poster presents the numerical design and first experimental results of integrated HTLs for reactive bonding. It describes the challenges with special focus on the analysis of the thermomechanical properties of the thin films.