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Development of adhesive-based pixel-detector hybridisation concepts

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A reliable and cost-effective interconnect technology is required for the development of hybrid pixel detectors. The interconnect technology needs to be adapted for the pitch and die sizes of the respective applications. This contribution presents recent results of an in-house single-die interconnection process based on Anisotropic Conductive Adhesives (ACA), which is under development within the CERN EP R&D programme and the AIDAinnova collaboration. The ACA interconnect technology replaces solder bumps with conductive micro-particles embedded in an epoxy layer applied as either film or paste. The electro-mechanical connection between the sensor and ASIC is achieved via thermo-compression of the ACA using a flip-chip device bonder. The ACA technology can also be used for ASIC-PCB/FPC integration, replacing wire bonding or large-pitch solder bumping techniques. This contribution introduces the developed interconnect processes and showcases different hybrid assemblies produced and tested.

Type of presentation (in-person/online)

in-person presentation

Type of presentation (scientific results or project proposal)

Presentation on scientific results

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