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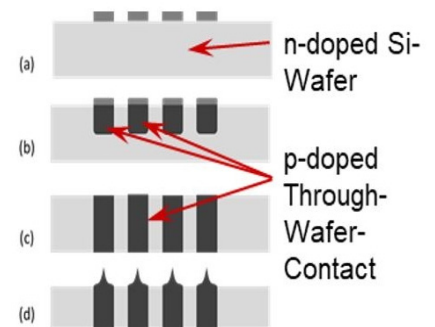
Applied Research Center

Integrated Miniaturised Systems



Development of Silicon-Wafer-Through-Contacts with an Aluminium-rich Solid/Liquid-Thermomigration Process

This project focuses on the development of an electrical connection between the silicon wafer front and back side. These wafer-through-contacts can be used to address individual 3-dimensional silicon microneedle electrodes, especially for life science applications. In such applications the electrodes are usually covered by a biological medium during the analysis of e.g. neural cell networks. With an electrical connection between the chips front and back more individual electrodes could be integrated. The thermomigration process is based on the migration of an Al/Si-liquid alloy forming under the influence of a vertical temperature gradient across the wafer's front and back. During the thermal processing a heavily aluminum doped trail is formed through the wafer. The microneedle-based electrodes are subsequently formed on the front side.



Schematic process illustration to form a conductive through wafer contact addressing 3D micro electrodes

Project duration:

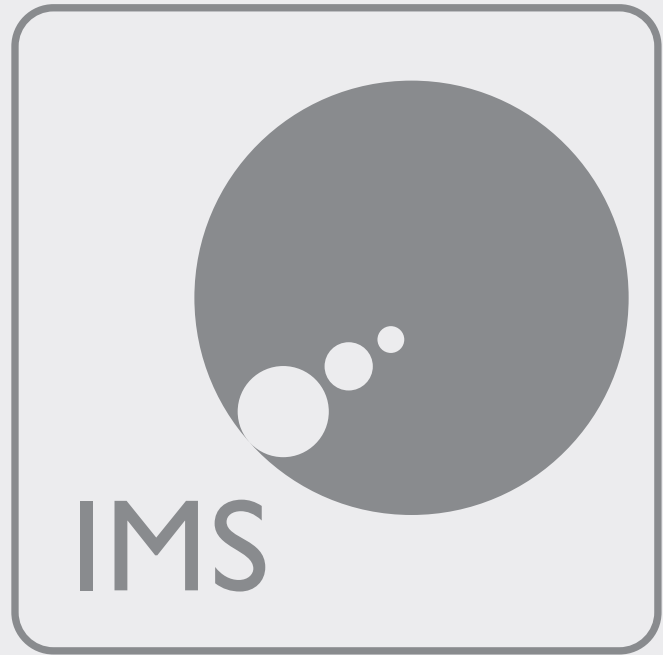
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Project management:

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