5.B.6 **Device Reliability for CMOS Image Sensors with Backside TSVs**

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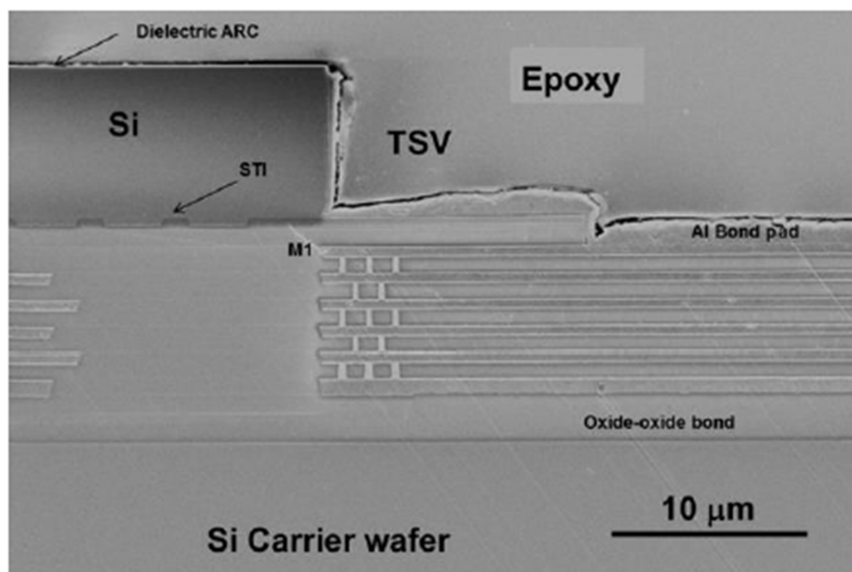
CMOS sensors with TSV is a fast growing application of 3D integration. This technology enables the fabrication of powerful image sensors that are assembled into the cameras of most portable electronic devices. Owing to their complex integration, potential interactions between the TSV processes and the CMOS image sensor play a key role in the reliability of such devices. This work studies the mechanisms of such interactions and highlights the potential challenges involved in bringing this complex technology to market.



This figure highlights the complex integrational challenges involved in fabricating an advanced imaging sensor with back-side TSV to enable fast connection to a processing chips. The TSV, while enabling the powerful image processing capabilities of the chip, also causes unwanted interaction to the devices. Understanding these perturbations enables more powerful imaging systems that will not fail in the field.