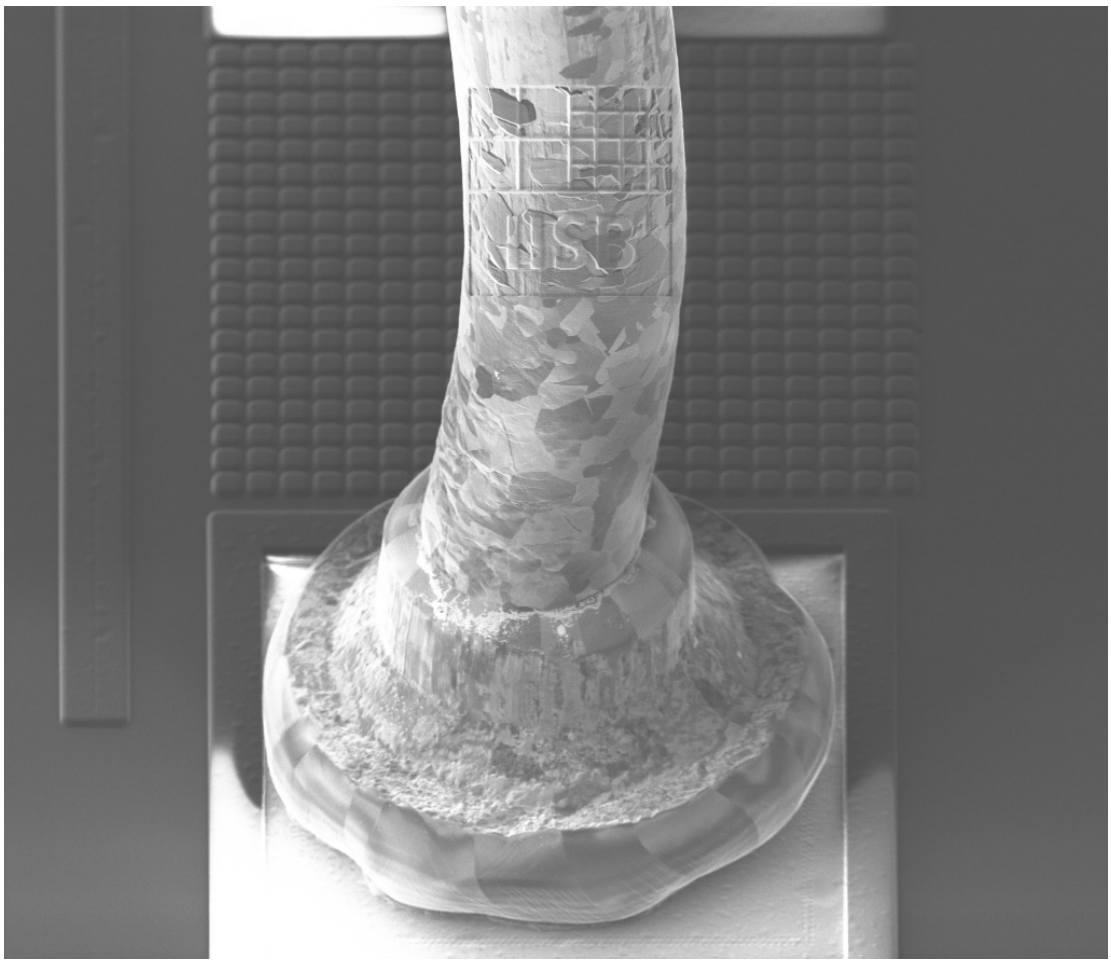


Focused Ion Beam Services

Nanostructuring, Failure Analysis, & Rapid IC-Prototyping

FhG IISB supports you in processing nanosized structures and helps you to shorten time to market for your ASICs. Focused Ion Beam (FIB) technology provides you new access to prototyping of micro- and nanosystems, and FIB allows for fast failure analysis and circuit modification.

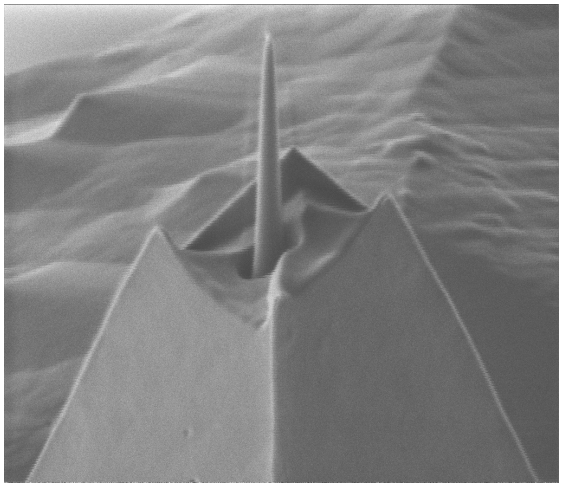
Fraunhofer
IISB

Focused Ion Beam Technology for

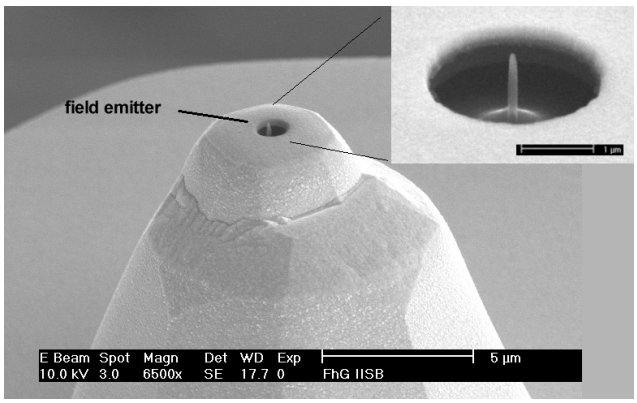
- Local material removal down to sub-100 nm scale
- Local deposition of conducting and insulating layers in direct writing mode
- Process control by high resolution secondary electron imaging

Nanostructuring

Material processing with focused ion and electron beams is done in a direct writing mode and enables fast and flexible fabrication of nanostructures with well defined geometry.



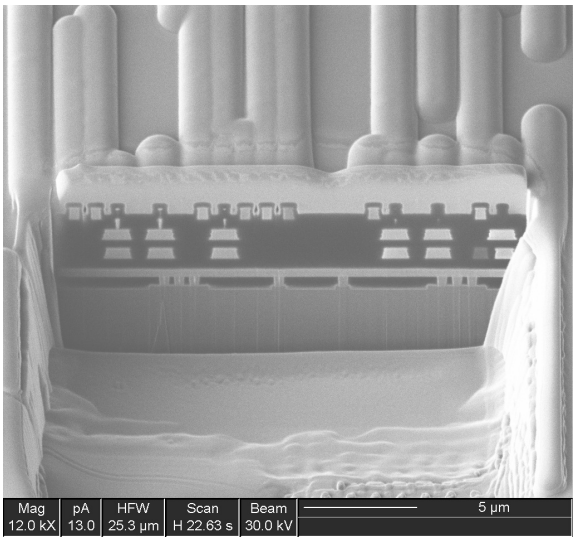
Scanning Probe Microscopy (SPM) sensor modified by focused ion beam milling.



Integration of a field emitter into the tip of a SPM sensor by focused ion and electron beam processing.

Fabrication and modification of prototypes which can not be processed by conventional optical lithography, e.g. actuators, sensors, and microoptics.

Failure Analysis



Local cross sectioning for failure analysis.

Local cross sectioning, depassivation, and in situ secondary electron inspection identifies the nature of failure, e.g. voids, cracks, particles, exactly at the area of interest.

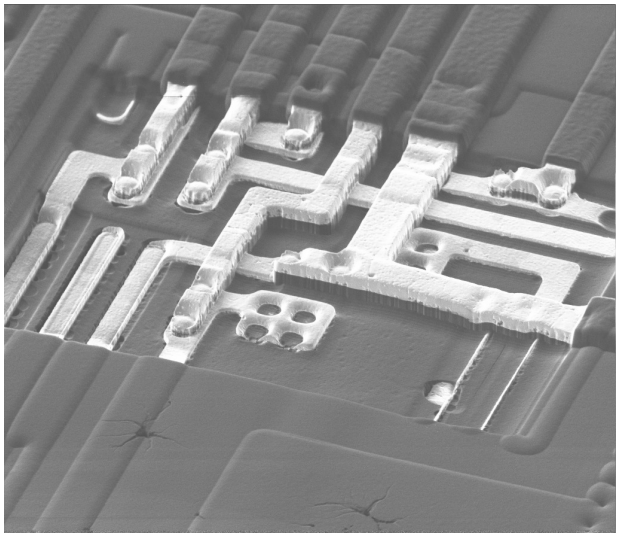
Fabrication of thin lamella by FIB allows transmission electron microscopy (TEM) and high resolution EDX analysis at well defined areas.

Fast Verification of Design Changes

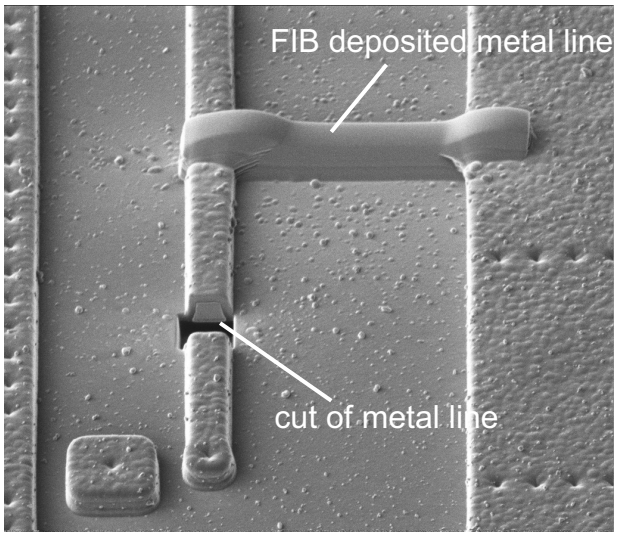
Your new device does not work properly ?

You need access to buried metal lines for electrical testing ?

We create additional test pads by local removal of the passivation above metal lines or by deposition of new test pads.



Access to buried metal lines by depassivation of an integrated circuit.



FIB modification of an integrated circuit.

You would like to rapidly modify the design and verify its function before starting a new process ?

Using your data we modify your circuit within a few hours by:

- Cutting metal lines by FIB milling or gas enhancend etching

- Rewiring of the device by FIB deposition of new metal interconnects

Fraunhofer Institute of Integrated Systems and Device Technology (IISB)

The Fraunhofer Institute of Integrated Systems and Device Technology (IISB) in Erlangen, Germany, conducts applied research and development as a partner for industry and public institutions. Founded in 1985, IISB is traditionally dedicated to semiconductor technology for micro- and nanoelectronics. IISB develops new processes and equipment for semiconductor processing in the whole front-end sector. This includes advanced processing steps for devices, test structures, analytical investigations, development and optimization of manufacturing equipment and materials, as well as simulation of semiconductor processes and devices. Furthermore, IISB is a competence center for crystal growth of semiconductors and optical materials, developing and optimizing crystal growth processes by means of experimental studies, advanced metrology, and numerical simulation. The spectrum of IISB is completed by wide activities in the field of power electronics and mechatronics, characterized by application-oriented research on innovative solutions for power electronic circuits and systems, mechatronic system integration and drives.

Contact

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Travel Information

By car

Take Autobahn A3, exit Erlangen-Tennenlohe, follow signs for Erlangen, after 2 km on Bundesstrasse B4 take exit for "Universität Südgelände", follow signs for IISB, after 1.5 km north on Kurt-Schumacher-Strasse turn left twice into Cauerstrasse and Schottkystrasse.

By plane

From Nürnberg (Nuremberg) international airport by taxi (15 minutes), or by bus 32 to Nürnberg-Thon and then bus line 30/30E to Erlangen-Süd (30 minutes).

By train

From Erlangen station by taxi (15 minutes), or by bus line 287 to Stettiner Strasse (30 minutes). Convenient train services from Nürnberg Hauptbahnhof (central station) to Erlangen station.