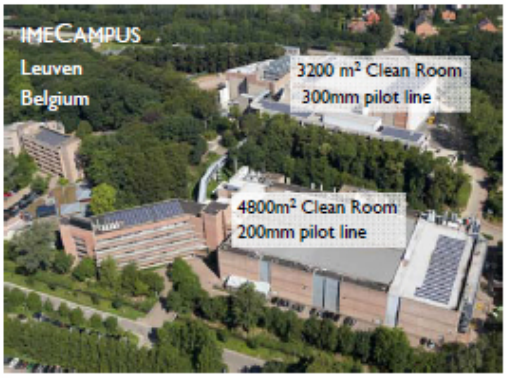
23 IMEC (Interuniversity Microelectronics Centre) (Belgium)



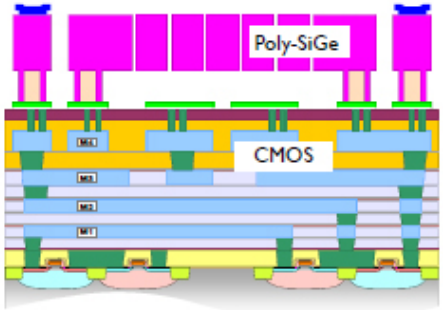
IMEC: HOME OF SIGE MEMS

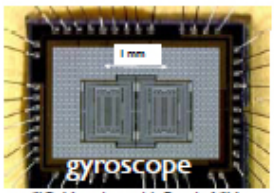
Background

In imec's 200mm fab a dedicated **poly-SiGe above-IC MEMS** (Micro Electro-Mechanical Systems) platform has been set up to integrate MEMS and its readout and driving electronics on one chip. This monolithic approach results in more compact systems with a reduced assembly and packaging cost and a higher performance than current hybrid systems.

Platform

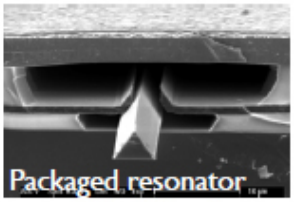
The **SiGe MEMS platform** consists of a number of standard modules: CMOS protection layer, MEMS via and poly-SiGe electrode, anchor and poly-SiGe structural layer and an optional thin-film poly-SiGe packaging module. Extra modules, such as a piezoresistive layer (see exhibit #1) can be added depending on the functionality that is needed.



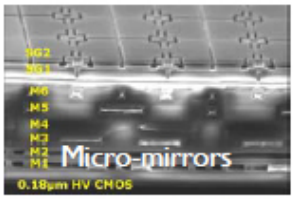


SiGeM project with Bosch, ASM, Philips (now NXP), IMSE-CNM

Project with Intel and Nanochip



Project with Panasonic



Project with ASML, NXP, Bruco, Philips Applied Technologies

Demonstrators

With this platform and together with our partners, several **successful demonstrators** have been built already. Examples are an integrated gyroscope for automotive applications (exhibit #2), a reliable 11 megapixel micro-mirror array for high-end industrial applications (exhibit #3), a cantilever array for probe-based data storage, SiGe thin film packaged SOI resonators with quality factors >200 000, ...

(Co-)development

Concept Design	Process development Packaging Testing Reliability	Product Qualification

CMORE

Prototyping

Prototyping Low-volume prototyping @ imec	Transfer

Production

High-volume manufacturing @ foundry partner

CMORE service

This SiGe platform is one of the technologies that imec offers to industrial customers through our **CMORE service**. Within CMORE innovative concepts are turned into products. Academic customers can make use of the SiGe **MPW service** within **Europractice** (exhibit #4)

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