



PRESS RELEASE – February 2016
- FOR IMMEDIATE RELEASE -

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The MSP -project is funded by the European Union under EU Framework Programme 7

FP7-Project “MSP - Multi Sensor Platform for Smart Building Management” announces an extended Multi-Project-Wafer service with sensor functions – a big step forward to a European ecosystem for integrated multi sensor systems

The € 18 million FP7 project “MSP - **M**ulti **S**ensor **P**latform for Smart Building Management” project has achieved an important milestone on creating a European ecosystem for integrated multi sensor systems. An extended Multi-Project-Wafer (MPW) service providing sensing functions and key features for 3D-integration of sensor devices is available for customers: Specific optoelectronic sensing functions and Through Silicon Vias (TSVs) technology are offered as MPW service by the Full Service Foundry division of ams AG and the partner Fraunhofer-IIS. This enables customers to design microchips with integrated optical sensors being ready for 3D-stacking of other sensor devices. Presently the sensing functions are limited to devices which can be fabricated on CMOS level.

To push the performance of sensor devices, the MSP consortium employs nanotechnology based materials, such as nanowires, nanoparticles and graphene. Integration of these nanomaterials with CMOS devices requires advanced manufacturing technologies. For fully exploiting the potential of these nanomaterials the MSP consortium plans to offer these technologies on a research-level to customers as add-on to the CMOS-based MPW service. This extends the current MPW service well beyond the state-of-the-art and enables companies, R&D institutes, and universities for prototyping, evaluating, and screening of entirely new technologies. In particular for SMEs this will be a golden opportunity for early take up of KETs for new device and product development. This extended MPW service could be the key towards a European ecosystem for integrated multi sensor systems.

Background Notes

European Project: “MSP - Multi Sensor Platform for Smart Building Management”

(FP7-ICT-2013-10, Project # 611887)

The three-year, €18 million FP7-project MSP has the objective of strengthening the leadership of European industries in the highly competitive area of smart sensing systems in building management and mobile applications. The new project aims to develop novel technology that can sense multiple hazardous gases and other environmental parameters. This could open entirely new applications in smart building management and the ability to use smartphones to monitor air quality and detect harmful gases like carbon monoxide in the home.

Major goal of the MSP project is the development of highly innovative sensors based on Key Enabling Technologies (KETs). Nanotechnology based materials, such as nanowires, nanoparticles and graphene, are employed by the MSP consortium to push the performance of sensor devices well beyond the state-of-the-art. This requires development of highly competitive production technologies that enabling flexible integration of nanotechnology based multi-sensor systems with conventional electronic chips.

The MSP project is led by MCL and comprises of 17 large and small companies, universities and public research centres from 6 European countries. The partners include: Materials Center Leoben, ams AG and EV Group (EVG) from Austria; AppliedSensor GmbH, Fraunhofer Gesellschaft, Siemens AG and the University of Freiburg from Germany; Boschman Technologies B.V. and Holst Centre from the Netherlands; the University of Oxford, the University of Cambridge, the University of Warwick, Cambridge CMOS Sensors and Samsung Electronics UK LTd., from the United Kingdom; the University of Louvain and Vito from Belgium; and Università degli studi di Brescia from Italy.

The MSP project started in the autumn of 2013 and is due to complete in 2017.

Examples of how a multi sensor platform could be used

Up to 50% of energy consumption and CO₂ emissions can be saved using intelligent air conditioning systems that are controlled by air quality. Additional infrared sensors provide fire alarm and detect and locate the presence of people in the building – this can set new safety standards in building technologies.

One major goal is to implement multi-sensor systems directly into smartphones for detecting harmful environmental gases. For example a gas sensor for carbon monoxide can provide warning of a defective heating system and an increased or even deadly CO concentration - a potential source of danger in millions of households worldwide. An ozone sensor can be used to monitor air quality and support athletes in planning outdoor training.

Multi-Project-Wafer service and impact to European industry

By combining integrated circuit designs from multiple customers, a MPW service minimizes costs associated with microelectronic wafer fabrication and brings design and manufacturing capability within the technical and financial reach of companies, R&D institutes, and universities. MPW services are offered by government-supported institutions and companies including Europractice,

ePIXfab, ams AG and Fraunhofer IIS, and are highly important drivers in microelectronic device innovation.

About MCL

The Materials Center Leoben Forschung GmbH (MCL) is one of the leading Austrian institutions in the field of applied Materials Science with around 150 employees. In particular, it is the coordinator of the COMET K2 Center on “Integrated research in Materials, Processing and Product Engineering (MPPE)” which focuses on the application of advanced materials science to technological aspects along the whole value chain including materials development, materials processing, fabrication of components, and the behavior of components in service. To discover more, please visit www.mcl.at.

For more information about the MSP-project please visit the project's website www.multisensorplatform.eu or send an e-mail to the project-coordinator.

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