Announcement of IPCEI Focus Session during ESSDERC/ESSCIRC 2019 at Cracow (Krakow), Poland

Europe's first Important Project of Common European Interest (IPCEI)
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Innovative Technologies for Shaping the Future

Focus Session

(Tuesday 24th of September)

In December 2018 the European Commission approved a project proposal of four EU member states - France, Germany, Italy and the UK – to start an Important Project of Common European Interest (IPCEI) on Microelectronics. It will allow the national governments to spend about €1.8 billion as public support to the project partners for innovative research and development, and investment in first industrial deployment. The project's overall objective is to enable research and development of innovative technologies and advanced electronics components. Among them are semiconductor chip technologies, integrated circuits, sensors, assembly and packaging technologies as well as advanced equipment and materials. Target applications are consumer devices, for example home appliances and automated vehicles, commercial and industrial devices, such as the management systems for batteries used for electric mobility and energy storage.
The integrated research and innovation project involves 27 direct participants. These direct participants will work in collaboration with a large number of partners, such as research organisations or small and medium-sized enterprises (SMEs).

The IPCEI project is focusing on five technology fields (TF), which are complementary and interlinked:

(1) **Energy efficient chips**: Development of new solutions to improve the energy efficiency of chips. Besides others, they will reduce the overall energy consumption of electronic devices including those installed in cars.
(2) **Power semiconductors**: Development of new technologies of components for smart appliances as well as for electric and hybrid vehicles, to increase the reliability of final semiconductor devices.
(3) **Smart sensors**: Development of new optical, motion or magnetic field sensors with improved performance and enhanced accuracy. Besides others, such smart sensors will contribute to improve the traffic safety of cars by better adapting the overall traffic situation. Key will be to make sensor systems with shorter reaction time and increased reliability available.
(4) **Advanced optical equipment**: Development of advanced technologies for future high-end chips.
(5) **Compound materials**: Development of new compound materials (replacing silicon) and devices suitable for more advanced chips.

Goal of the workshop is to introduce ambitions, objectives and first results of key IPCEI partners to the semiconductor community in Europe. Representatives of the European microelectronics industry and RTOs will give an insight into their R&D work and first results achieved.

We plan the following **agenda** with presentations from the five technology fields:

Time slot 1 (4 presentations, each 20 minutes; from 11:00 to 12.20)

Session title: Challenges for Power Devices and Merging Microelectronics with Optics
(session chair: Rainer Pforr, Zeiss)

For TF2

11:00 - 11:20
Double Side Cooling technology for eMobility
Andreas Grassmann and Klaus Pressel (***Infineon Technologies***, Regensburg, Germany)
Contact email: Klaus.pressel@infineon.com

11:20 – 11:40
Current Power SiC device development, material defect characterisation and measurements at Bosch
Daniel Baierhofer (**Bosch**, Reutlingen, Germany,)
Contact email: Daniel.baierhofer@de.bosch.com

11:40- 12:00
Power Packages Interconnections for High Reliability Automotive Applications"
M. Calabretta, M. Renna, V. Vinciguerra, A. Messina (*STMicroelectronics, Catania, Italy*)
Contact email: michele.calabretta@st.com

TF5

12:00 – 12:20
Pixelated Light: Merging microelectronics and photonics
Dominik Scholz, Stefan Groetsch, and Martin Strassburg (***OSRAM,*** *Regensburg,* Germany)
Contact email: Martin.Strassburg@osram-os.com

Time Slot 2 (4 presentations, each 20 minutes, from 14.00 to 15.20)

Session title: MEMS, Sensors and Advanced Integration Technologies
(session chair: Klaus Pressel, Infineon Technologies)

For TF3

14:00 – 14:20
Bosch MEMS Foundry Service
Stefan Majoni (***Bosch***, *Reutlingen, Germany*)
Contact email: Stefan.Majoni@de.bosch.com

14:20 – 14:40
Micro-Transfer-Printing – A unique technology for heterogeneous integration of (opto-) electronic components
Gabriel Kittler (***X-FAB***, Erfurt, Germany)
Contact email: Gabriel.Kittler@xfab.com

14:40 – 15:00
Silicon Photomultipliers Technology at Fondazione Bruno Kessler and 3D integration perspectives.
Giovanni Paternoster (Fondazione Bruno Kessler, FBK, Italy)

Contact email: paternoster@fbk.eu

15:00 – 15:20

Challenges and capabilities of 3D integration in CMOS imaging sensors

Dominique Thomas (**STMicroelectronics**, Crolles, France)

Contact email: dominique.thomas@st.com

Time Slot 3 (6 presentations, 4 have 20 minutes, the two of GloFo are only 15 minutes, from 16.40 – 18.30 => 30 minutes extension)

Session title: Advanced Semiconductor Process and Device Technologies in Europe

(session chair: Dominique Thomas, STMicroelectronics Crolles)

TF4

16:40 – 17:00

Excursion prevention and increasing device performance by intra-field mask correction

Thomas Scheruebl (***Zeiss SMT,*** Oberkochen, Germany)

Contact email: Thomas.scheruebl@zeiss.com

17:00 – 17:20

High NA EUV Optics – The key for miniaturization of integrated circuits in the next decade

Heiko Feldmann (***Zeiss SMT,*** Oberkochen, Germany)

Contact email: heiko.feldmann@zeiss.com

TF1

17:20 – 17:40

22FD-SOI variability improvement thanks to SmartCut thickness control at atomic scale"

W. Schwarzenbach, S. Loubriat, V. Joseph, L. Viravaux, O. Moreau, S. Lasserre, B.Y. Nguyen (Soitec, France)

Contact email: walter.schwarzenbach@soitec.com

17:40 – 18:00

How to Achieve World-Leading Energy Efficiency using 22FDX with Adaptive Body Biasing on an ARM Cortex-M4 IoT SoC

Sebastian Höppner (***Racyics***, Dresden, Germany)

Contact email: hoeppner@racyics.de

18:00 – 18:15

22-FDX-Technology and Add-on-Functionalities (15 minutes)

Maciej Wiatr (***Globalfoundries***, Dresden, Germany)

Contact email: Maciej.Wiatr@globalfoundries.com

18:15 – 18:30

IPCEI subcontracts contributing to 22-FDX Add-On Functionalities (15 minutes)

Speaker: Sabine Kolodinski (Globalfoundries Dresden, Germany)

Contact email: sabine.kolodinski@globalfoundries.com