

# **2011 IEEE MTT-S International Microwave Workshop Series on Millimeter Wave Integration Technologies**

**(IMWS 2011)**

**Sitges, Spain  
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# Program

Wednesday, September 14

**WED\_REG: Registration**

Thursday, September 15

**THU\_REG: Registration**

**THU\_OPENING: Opening Address**

**THU\_PLE1: Joint Plenary Session 1: Stepan Lucyszyn, Imperial College London, UK**

"Commercial Applications for RF MEMS"

**THU\_PLE2: Joint Plenary Session 2: Yahya Rahmat-Samii, University of California Los Angeles, Los Angeles, USA**

"Novel Platform Tolerant and Medicine Monitoring RFID Antenna Designs"

**Coffee Break**

**IMWS\_STUDENT\_CONTEST: IMWS Student Contest [Poster Session]**

**THU1P: mm-wave Circuits [Poster Session]**

***Microstrip-to-stripline planar transitions on LTCC***

Álvaro Gámez (Universidad Politecnica de Madrid, Spain); Diego Valdés (Universidad Politécnica de Madrid, Spain); Alberto Asensio (Universidad Politecnica Madrid, Spain); Javier Gismero (Universidad Politecnica Madrid, Spain)  
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***Implementation of Extraordinary Transmission based devices in Millimeter Wave bands***

Miguel Beruete (Universidad Publica de Navarra, Spain); Miguel Navarro-Cía (Universidad Publica de Navarra, Spain); Aritz Estévez (Tafco Metawireless, Spain); Jesus Illescas (Tafco Metawireless, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain); Mario Sorolla (Universidad Publica de Navarra, Spain)  
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***Low Power Consumption Millimeter-Wave Amplifiers using InP HEMT Technology***

Colombo R. Bolognesi (ETH Zurich, Switzerland)  
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***Ka-Band Compact Filter Design on LTCC Technology using Coupling Matrix Optimization CAD***

Diego Valdés (Universidad Politécnica de Madrid, Spain); Álvaro Gámez (Universidad Politécnica de Madrid, Spain); Francesco Naccarato (Politecnico di Milano, Italy); Alberto Asensio (Universidad Politécnica Madrid, Spain); Javier Gismero (Universidad Politécnica Madrid, Spain)  
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***A 8:1 Static Frequency Divider operating up to 34 GHz in 0.13- $\mu$ m CMOS Technology***

Ran Shu (Berlin Institute of Technology, Germany); Viswanathan Subramanian (Technical University of Berlin, Germany); Georg Boeck (TU Berlin, Germany)  
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***40-GHz High-Linearity Single-Voltage-Supply pHEMT Gilbert Sub-Harmonic Upconverter Using Leveled-LO Topology***

Chinchun Meng (National Chiao Tung University, Taiwan); Jen-Yi Su (National Chiao Tung University, Taiwan)  
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***Multi-physics Design and Manufacturing of a Quad-band Frequency Selective Surface for Space Applications***

Marco Pasian (University of Pavia, Italy); Marco Formaggi (Cobham Technical Services, United Kingdom); Maurizio Bozzi (University of Pavia, Italy); Fabio Carli (University of Pavia, Italy); Luca Perregrini (University of Pavia, Italy); Glafkos Philippou (Cobham Technical Services, United Kingdom); Guillaume Dauron (Esa – Esoc, Germany)  
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## **THU1: mm-wave Antenna & Antenna Arrays**

***Plate-laminated-waveguide Corporate-feed Slot Array Antennas with a Polarization Conversion Layer***

Jiro Hirokawa (Tokyo Institute of Technology, Japan); Takashi Tomura (Tokyo Institute of Technology, Japan); Yohei Miura (Tokyo Institute of Technology, Japan); Miao Zhang (Tokyo Institute of Technology, Japan); Makoto Ando (Tokyo Institute of Technology, Japan)  
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***Millimeter-Wave Patch Array Antennas Topologies on HTCC and HITCE substrates***

Francesco Giuppi (University of Pavia, Italy); Andrea Milano (University of Pavia, Italy); Andrea Pallotta (STMicroelectronics, Italy); Paolo Arcioni (University of Pavia, Italy)  
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***122 GHz Antenna-Integration in a Plastic Package based on a Flip Chip Interconnect***

Stefan Beer (Karlsruhe Institute of Technology, Germany); Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)  
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***Integrated Microstrip-Fed Slot Array Antenna for Emerging Wireless Application in IPD Technology***

Behzad Biglarbegian (University of Waterloo, Canada); Mohammad-Reza Nezhad-Ahmadi (ON Semiconductor, Canada); Safieddin Safavi-Naeini (University of Waterloo, Canada)  
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***Microstrip Half-Mode Leaky-Wave Antenna operating at 94 GHz***

Alejandro Javier Martinez-Ros (Universidad Politécnica de Cartagena, Spain); Jose-Luis Gómez-Tornero (Polytechnic University of Cartagena, Spain); George Goussetis (Reader, United Kingdom)  
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## Lunch Break

## THU2: Trends in mm-wave Systems

***Ultra-low Cost THz Short-range Wireless Link***

Stepan Lucyszyn (Imperial College London, United Kingdom); Hanchao Lu (Imperial College London, P.R. China); Fangjing Hu (Imperial College London, United Kingdom)  
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***Experimental evaluation of the E-band multi-chip modules integrated using laminated LCP substrates***

Val Dyadyuk (CSIRO, Australia); Leigh Stokes (CSIRO ICT Centre, Australia); Thomas Merkle (Sony Deutschland, Germany)  
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***Integrated Front-ends up to 200 GHz***

Vessen Vassilev (Chalmers University of Technology, Sweden); Niklas Wadefalk (University of Chalmers, Sweden); Morteza Abbasi (Chalmers University of Technology, Sweden); Rumen Kozhuharov (Chalmers University of Technology, Sweden); Herbert Zirath (Chalmers University of Technology, Sweden); Sten Gunnarsson (Chalmers, Sweden); Tony Pellikka (Omnisys Instruments, Sweden); Anders Emrich (Omnisys Instruments, Sweden); Ingmar Kallfass (Karlsruhe Institute of Technology, Germany); Arnulf Leuther (Fraunhofer Institute for Applied Solid State Physics, Germany)  
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***CMOS K-Band Receiver Architectures for Low-IF Applications***

Tao Zhang (Berlin Institute of Technology, Germany); Viswanathan Subramanian (Technical University of Berlin, Germany); Georg Boeck (TU Berlin, Germany)  
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### ***Micrometric Deformation Imaging at W-Band***

Jordi Abril (Universitat Politècnica de Catalunya, Spain); Enrique Nova (Universitat Politècnica de Catalunya, Spain); Antoni Broquetas (Universitat Politècnica de Catalunya, Spain); Albert Aguasca (Universitat Politècnica de Catalunya (UPC), Spain); Jordi Romeu (Universitat Politècnica de Catalunya, Spain); Luis Jofre (UPC, Spain)

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## **Coffee Break**

## **THU3: mm-wave Integrated Circuits**

### ***Design of Broad-Band mm-Wave SiGe Power Amplifiers Applying Full EM Simulation***

Amin Hamidian (Technical Institute of Berlin, Germany); Viswanathan Subramanian (Technical University of Berlin, Germany); Georg Boeck (TU Berlin, Germany)

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### ***Miniaturized Low-Loss Millimeter-Wave Rat-Race Balun in a CMOS 28 nm technology***

François Burdin (IMEP-LAHC, France); Florence Podevin (IMEP-LAHC Grenoble, France); Anne-Laure Franc (IMEP-LAHC Grenoble, France); Emmanuel Pistono (IMEP-LAHC Grenoble, France); Daniel Gloria (STMicroelectronics, France); Philippe Ferrari (IMEP-LAHC, France)

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### ***Development of a Sub-Harmonic Mixer Working at 220 GHz***

Itziar Maestrojuán (Public University of Navarra, Spain); Ines Palacios (Public University of Navarra, Spain); Ainara Rebollo (Public University of Navarra, Spain); David Etayo (Public University of Navarra, Spain); Jorge Teniente (Public University of Navarra, Spain); Iñigo Ederra (Universidad Publica de Navarra, Spain); Ramon Gonzalo (Public University of Navarra, Spain)

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### ***Terahertz Components Packaging Using Integrated Waveguide Technology***

Vincent Desmaris (Chalmers University of Technology & Earth and Space Sciences Department, Sweden); Denis Meledin (Chalmers University of Technology, Sweden); Dimitar Dochev (Chalmers University of Technology & Altran Technologies Sweden, Sweden); Alexey Pavolotsky (Chalmers University of Technology, Sweden); Victor Belitsky (Chalmers University of Technology, Sweden)

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### ***W-band Tunable Reflective Type Phase Shifter Based on Waveguide-Mounted RF MEMS***

Dimitra Psychogiou (Swiss Federal Institute of Technology, Switzerland); Jan Hesselbarth (Swiss Federal Institute of Technology, Switzerland); Yunjia Li (Swiss Federal Institute of Technology, Switzerland); Stephane Kuehne (Swiss Federal Institute of Technology, Switzerland); Christofer Hierold (Swiss Federal Institute of Technology, Switzerland)

**Friday, September 16**

**FRI\_REG: Registration**

**IMWS\_FRI\_PLE1: Plenary Session 1: John Papapolymerou, Georgia Institute of Technology, USA**

"Recent Advances in SOC and SOP Integrated mm-wave and sub-mmwave Front Ends"

**IMWS\_FRI\_PLE2: Plenary Session 2: Ingo Wolff, IMST GmbH, Kamp-Lintfort, Germany**

"Integration of Millimeterwave Systems using LTCC-Technology"

**Coffee Break**

**FRI1P: mm-wave Systems [Poster Session]**

***A broadband radiometer configuration at 94GHz in planar technology***

Ainara Rebollo (Public University of Navarra, Spain); Itziar Maestrojuán (Public University of Navarra, Spain); Ramon Gonzalo (Public University of Navarra, Spain); Iñigo Ederra (Universidad Publica de Navarra, Spain)  
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***60-GHz Millimeter-Wave Life Detection System with Clutter Canceller for Remote Human Vital-Signal Sensing***

Hsin-Chih Kuo (National Cheng Kung University, Taiwan); Huey-Ru Chuang (National Cheng Kung University, Taiwan); Fu-Lin Lin (Southern Taiwan University of Technology, Taiwan)  
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***Analysis of Topology and Morphology Influence in Indoor Millimeter Wave Wireless Networks***

Victor Torres (Universidad Publica de Navarra, Spain); Leire Azpilicueta (Universidad Publica de Navarra, Spain); Aritz Estévez (Tafco Metawireless, Spain); Miguel Beruete (Universidad Publica de Navarra, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain)  
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***FMCW MM-wave Non-Imaging Sensor for Detecting Hidden Objects***

Boris Kapilevich (Ariel University Center of Samaria, Israel); Yosif Pinhasi (Ariel University Center of Samaria, Israel); Michael Anisimov (Ariel University Center of Samaria, Israel); Boris Litvak (Ariel University Center of Samaria, Israel); Danny Hardon (Ariel University Center of Samaria, Israel)  
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***COTS Technologies for Radar Sensors at Millimeter-Wave Bands***

Beatriz Mencia-Oliva (Universidad Politecnica de Madrid & ETSI Telecomunicacion, Spain); Jesús Grajal (Universidad Politécnica de Madrid, Spain); Omar Yeste (Universidad Politécnica de Madrid, Spain)  
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**FRI2P: mm-wave Device & System Modelling [Poster Session]**

***Scalable HEMT Small-Signal Model Extraction based on a Hybrid Multibias Approach***

Yolanda Campos-Roca (University of Extremadura, Spain); Hermann Massler (Fraunhofer IAF, Germany); Arnulf Leuther (Fraunhofer Institute for Applied Solid State Physics, Germany)  
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***Extraction of RF Feeding Structures for Accurate Device Modeling up to 100 GHz***

Amin Hamidian (Technical Institute of Berlin, Germany); Viswanathan Subramanian (Technical University of Berlin, Germany); Ran Shu (Berlin Institute of Technology, Germany); Andrea Malignaggi (TU Berlin, Germany); Georg Boeck (TU Berlin, Germany)  
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***Advanced Analysis of Propagation Losses in Rectangular Waveguide Structures Using Perturbation of Boundary Conditions***

Stephan Marini (Universidad de Alicante, Spain); Michel Mattes (EPFL, Switzerland); Benito Gimeno (Universidad de Valencia, Spain); Pablo Soto (Universidad Politécnica de Valencia, Spain); Vicente Boria (Universidad Politécnica de Valencia, Spain)  
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***Principal Component Analysis In Application For Filter Tuning Algorithm***

Tomasz Kacmajor (TeleMobile Electronics, Poland); Jerzy Michalski (TeleMobile Electronics Ltd., Poland)  
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***Inclusion sets for the input and characteristic impedance of lossy microwave lines***

Andrei Muller (Romania & IMT, Romania); Dan Dascalu (IMT Bucharest, Romania)  
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**FRI3P: Substrate Integrated Waveguide (SIW) mm-wave Components [Poster Session]**

***Development of a 60 GHz Substrate Integrated Waveguide Planar Diplexer***

Nikos Athanasopoulos (Technological Educational Institution of Athens, Greece); Dimitris Makris (Technological Educational Institution of Athens,

Greece); Konstantinos Voudouris (Technological Educational Institute of Athens, Greece)  
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***A Tolerance Study on 30 GHz Planar Filters based on Substrate Integrated Waveguide Technology***

Francesco Giuppi (University of Pavia, Italy); Ana Collado (CTTC, Spain); Apostolos Georgiadis (CTTC, Spain); Maurizio Bozzi (University of Pavia, Italy); Selva Via (CTTC, Spain); Luca Perregrini (University of Pavia, Italy)  
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***Novel Millimeter Wave Integrated Waveguide and Antenna***

Hong-Jun Tang (Southeast University, P.R. China); Hong Wei (Southeast University, P.R. China); Guang-Qi Yang (Southeast University, P.R. China); Ji Xin Chen (Southeast University, P.R. China)  
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***Return-Loss Investigation of the Equivalent Width of Substrate-Integrated Waveguide Circuits***

Farzaneh Taringou (University of Victoria, Canada); Jens Bornemann (University of Victoria, Canada)  
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**FRI1: mm-wave Active Circuits**

***A Highly Linear 84 GHz Low Noise Amplifier MMIC in AlGaIn/GaN***

Ingmar Kallfass (Karlsruhe Institute of Technology, Germany); Hermann Massler (Fraunhofer IAF, Germany); Sandrine Wagner (Fraunhofer IAF, Germany); Dirk Schwantuschke (Fraunhofer Institute for Applied Solid State Physics, Germany); Peter Brückner (Fraunhofer IAF, Germany); Christian Haupt (Fraunhofer Institute for Applied Solid State Physics, Germany); Rudolf Kiefer (Fraunhofer IAF, Germany); Rüdiger Quay (Fraunhofer IAF, Germany); Oliver Ambacher (Fraunhofer IAF & IMTEK, University Freiburg, Germany)  
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***Monolithic integration of millimeter-wave RF-MEMS switch circuits and LNAs using a GaAs MMIC foundry process technology***

Robert Malmqvist (FOI Swedish Defence Research Agency, Sweden); Carl Samuelsson (FOI Swedish Defence Research Agency, Sweden); Andreas Gustafsson (FOI, Sweden); Dereck Smith (Ommic, France); Tauno Vähä-Heikkilä (VTT Electronics, Finland); Rens Baggen (IMST GmbH, Germany)  
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***Comparison of 122 GHz LNAs in SiGe with different transmission line topologies***

Mao (IHP, Germany); Klaus Schmalz (IHP, Germany); J. Borngräber (IHP, Germany); Christoph Scheytt (IHP, Germany)  
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***Design of a Ka-Band LNA for SoC Space-Based Millimeter-Wave Radiometers***

Luca Aluigi (University of Perugia, Italy); Federico Alimenti (Università degli Studi di Perugia, Italy); Luca Roselli (University of Perugia, Italy)  
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***Design of a Low Noise Amplifier with Integrated Antenna for 60 GHz Wireless Communications***

Alessandro Fonte (University of Pisa, Italy); Sergio Saponara (University of Pisa, Italy); Giancarlo Pinto (University of Pisa, Italy); Luca Fanucci (University of Pisa, Italy); Bruno Neri (University of Pisa, Italy)  
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**Lunch Break**

**IMWS\_PANNEL: Panel Session**

“System Integration at mm-waves: strategies and technologies”

**FRI2: mm-wave Imaging Systems**

***Characterization of a 94 GHz Radiometric Imager with Mechanical Beam-Scanning***

Enrique Nova (Universitat Politècnica de Catalunya, Spain); Jordi Abril (Universitat Politècnica de Catalunya, Spain); Jordi Romeu (Universitat Politècnica de Catalunya, Spain); Antoni Broquetas (Universitat Politècnica de Catalunya, Spain); Francesc Torres (Universitat Politècnica de Catalunya, Spain); Luis Jofre (UPC, Spain)  
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***Rotary Array Imaging System by Means of Gabor's Holography***

Jordi Marin (Universitat Autònoma de Barcelona, Spain); Pedro de Paco (Universitat Autònoma de Barcelona, Spain)  
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***THz Imaging System for Industrial Quality Control***

David Etayo (Public University of Navarra, Spain); JuanCarlos Iriarte (Public University of Navarra, Spain); Ines Palacios (Public University of Navarra, Spain); Itziar Maestrojuán (Public University of Navarra, Spain); Jorge Teniente (Public University of Navarra, Spain); Iñigo Ederra (Universidad Publica de Navarra, Spain); Ramon Gonzalo (Public University of Navarra, Spain)  
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***On designing a W-band active coherent array***

Rafael Camarero (Universitat Autònoma de Barcelona, Spain); Jordi Marin (Universitat Autònoma de Barcelona, Spain); Oscar Menéndez (Universitat Autònoma de Barcelona, Spain); Pedro de Paco (Universitat Autònoma de Barcelona, Spain)  
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***Mm-wave Low-Profile Reflection Polarizer***

Efstratios Doumanis (Queen's University Belfast, United Kingdom); George Goussetis (Reader, United Kingdom); Jose-Luis Gómez-Tornero (Polytechnic University of Cartagena, Spain); Robert Cahill (Queen's University Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

## Coffee Break

### FRI3: mm-wave Filters

#### ***U-Band Micromachined Coaxial Filter***

Aline Jaimes-Vera (Centre Tecnologic de Telecomunicacions de Catalunya, Spain); Ignacio Llamas-Garro (Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain); Maolong Ke (The University of Birmingham, United Kingdom); Yi Wang (University of Birmingham, United Kingdom); Mike Lancaster (University of Birmingham, United Kingdom); Lluís Pradell (Universitat Politècnica de Catalunya, Spain)

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#### ***Towards Bulk Acoustic Wave Filters at Ka-Band***

Eden Corrales (Universitat Autònoma de Barcelona, Spain); Pedro de Paco (Universitat Autònoma de Barcelona, Spain); Oscar Menéndez (Universitat Autònoma de Barcelona, Spain)

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#### ***Microstrip band pass filter bank for 60 GHz UWB impulse radio multi band architectures***

Rahma Abdaoui (Paris Est University Esycom, France); Martine Villegas (ESYCOM ESIEE-Paris, France); Geneviève B. Baudoin (ESIEE, France); Antoine M Diet (Université Paris-Sud 11, France)

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#### ***N x N Coupling Matrix Synthesis of Dissipative Microwave Filters***

Diego Navarro-Tapia (University of Málaga & École Polytechnique Fédérale de Lausanne, Spain); Francisco Eden Sorolla (EPFL, Switzerland); Pablo Otero (Universidad de Málaga, Spain); Michel Mattes (EPFL, Switzerland)

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#### ***57-64 GHz Seven-Pole Bandpass Filter Substrate Integrated Waveguide (SIW) in LTCC***

Dragos Dancila (Université Catholique de Louvain & Imec, Belgium); Xavier Rottenberg (Imec, Belgium); Harrie Tilmans (Imec, Belgium); Walter De Raedt (IMEC, Belgium); Isabelle Huynen (Université catholique de Louvain, Belgium)

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