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Dr. Fred Roozeboom of NXP joins EMC3D consortium as Technical Advisor

3D chip stacking technology to create cost-effective, manufacturable, stackable TSV interconnection processes for IC and MEMS/Sensor packaging to be developed by international consortium with the added assistance of Dr. Fred Roozeboom

Eindhoven, 13 November 2007 - Dr. Fred Roozeboom, a Research Fellow at NXP Semiconductors Research and professor at the Eindhoven University of Technology; Applied Physics Plasma and Material processing for 3D integration and System-in-Package, has agreed to join the EMC3D consortium and provide technical advice and guidance in support of the EMC3D effort to quickly bring to market the technology of TSV chip stacking. Dr. Roozeboom joins a distinguished team of industry researchers devoted to creating a cost-effective 3D integration method. The technical team consists of both semiconductor materials companies and equipment companies, including technology groups Fraunhofer IZM in Berlin, KAIST (Korea Advanced Institute of Science and Technology), SAIT (Samsung Advanced Institute of Technology), CEA-LETI in France and TAMU (Texas A&M University).

About prof.dr. Fred Roozeboom

Fred Roozeboom is a Research Fellow at NXP Semiconductors Research (until 2006: Philips Research) in Eindhoven, The Netherlands. He received his MS in chemistry (cum laude) from the University Utrecht, The Netherlands in 1976, and his PhD in chemical engineering in 1980 at Twente University (Enschede, The Netherlands) on topics in catalysis. From 1980-1983 he worked on zeolite catalysis with Exxon R&D Labs in Baton Rouge, USA (1980-1982) and with Exxon Chemicals in Rotterdam (1983). In 1983 he

joined Philips Research in Eindhoven, where since 1997 he leads a team working on passive and hetero-integration, in particular on viahole technology and 3D integration for application in System-in-Package products and on high-value passives in silicon for application in wireless communication, power management and digital signal processing. His earlier work at Philips encompassed MOCVD of III-V semiconductor lasers (1983-1988), IC metallization materials deposition and processing (1988-1990) and on bulk ferrite and thin-film soft-magnetic materials for magnetic recording (1990-1996). In 1996 he worked on MBE of ultrathin magnetic and "switchable mirror" hydride multilayers. In 1995 he was the director of a NATO Advanced Study Institute on Rapid Thermal and Integrated Processing. He has authored or co-authored approximately 110 journal and conference publications, holds several patents, and is the editor or co-editor of 15 conference books on semiconductor processing. He serves as a member-at-large of the Electronics and Photonics Division of the Electrochemical Society and as a member of the ENIAC European Nanoelectronics Initiative Advisory Council advisory committee to the European Commission (subcommittee "Beyond CMOS") to the European Commission. He also served as a Meeting Chair of the Materials Research Society (MRS) Fall 2003 Meeting and as a member of the MRS Strategic Program Development Subcommittee. Since Sept. 2007 he is a part-time professor at the Department of Technical Physics in the group Plasma and Material Processing. Topics of interest include: Plasma Technology for 3D integration and System-in-Package.

About NXP

NXP Semiconductors is a top 10 semiconductor company founded by Philips in 2006, having more than 50 years experience in the field, branded Philips Semiconductors before 2006. Headquartered in Europe, the company has 37,000 employees working in more than 20 countries and posted sales of EUR 5 billion in 2006. NXP creates semiconductors, system solutions and software that deliver better sensory experiences in mobile phones, personal media players, TVs, set-top boxes, identification applications, cars and a wide range of other electronic devices. News from NXP is located at www.nxp.com .

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About EMC-3D (or EMC3D)

EMC3D (Semiconductor 3D Equipment and Materials Consortium) was created in 2006 to develop a new 3D market and technology by demonstrating a cost-effective, manufacturable, stackable TSV interconnection process for IC and MEMS/Sensor packaging.

www.EMC3D.org

Contacts for EMC^{3D} Members include:

Equipment Members:

Alcatel, France; (Paris: CGEP.PA and NYSE: ALA) Jean-Marc Gruffat, Director of Business Development
Technology: Si and dielectric etching using DRIE
EV Group, Austria; Thorsten Matthias, Director of Technology North America
Technology: bonding, thin wafer handling, mask alignment lithography, conformal coat and develop
SEMITOOL Inc, USA; (NASDAQ: SMTL), Paul Siblerud, VP Electroplating and WLP Division
Technology: electroplating, metal/barrier etch, photoresist strip, wafer cleaning and thinning
XSiL Ltd, Ireland; Dr. Alexey Rodin, Via Team Leader
Technology: Si laser machining, via drilling, and wafer dicing
Isonics Corp, USA; (NASDAQ: ISON) Kim Bell, Director of Sales
Technology: wafer service (reclaim and test wafers, wafer thinning, and thick-film SOI wafers)

Materials Members:

AZ Electronic Materials, USA; Aldo Orsi, Global Product Manager
Technology: positive and negative acting photoresists
Enthone (Cookson Electronics), USA; Yun Zhang, Director, Research and Development
Technology: chemistry for electroplating and metal etch
Rohm and Haas, USA; Bob Forman, Advanced Packaging Business Manager
Technology: chemistry for lithography, plating, etching, dielectric formation, and bonding
Brewer Science, Inc., USA; Laura Mauer, Associate Director of R&D Advanced Technologies
Technology: Materials used in litho, wafer thinning, wafer etching and anti-reflective coatings as well as spin-coat/develop/bake equipment.

Technology Members:

Fraunhofer IZM, Germany; Jürgen Wolf, Group and Project Manager
CEA-LETI; Dr. Mark Scannell, Microelectronic Programs Manager
NXP Semiconductors, Dr. Fred Roozeboom, Technical Advisor
KAIST (Korea Advanced Institute of Science and Technology), Korea; Dr. Kyung-Wook Paik, Professor
SAIT (Samsung Advanced Institute of Technology), Korea; Dr. Yoon-Chul Sohn, Researcher
TAMU (Texas A&M University), USA; Dr. Manuel Soriaga, Professor