

Thursday, September 13

12:00-13:15 Registration & lunch buffet

13:30-14:00 **Welcome & Opening Test Symposium**
Salland capabilities and future vision on test

Paul van Ulsen - Salland Engineering

To be able to deliver customer test solutions, Salland already works for many years together with customers and partners. To accelerate Test Innovation, the Salland team decided to move to a new, modern and larger facility, added Analog design capability, tightened the relationships with our business-partners and launched the Test technology Center. In this session we will look back to the history of Salland Engineering, the vision of Salland on Test in the future and the role Salland likes to play in this.

Paul is responsible for all aspects of corporate governance for Salland Engineering worldwide. Paul joined Salland in 1993 as a Test Application engineer. He became Manager of the Test Application business unit and soon demonstrated his sales skills as Managing Director for Salland Europe. Prior to Salland, Paul worked for Rood Testhouse International as a mixed-signal application engineer. He is a graduate of Windesheim Technical University in electronics and computer engineering.

14:00-14:15 **High Precision AWG and Digitizers**

Kars Schaapman - Applicos

High-End analog testing requires best in class analog/mixed signal hardware. Applicos has been focusing on this for more than 25 years. We develop Arbitrary Waveform Generator and Digitizer Technologies which are used in our standard modules and test system, in various OEM applications and for full custom designs. This session gives a brief overview of our latest capabilities and products.

Kars has been president of Applicos for 25 years. He founded Applicos and brought it up to the expert analog hardware company it is nowadays. Before Applicos he worked in several functions for Rood Testhouse International. At current Kars is joining the Salland Engineering group in order to integrate and extend the Applicos expertise within Salland Engineering. Kars is a graduate of Windesheim Technical University in electronics and computer engineering.

14:15-14:45 **Exotic sensors as exemplification of the challenge in MEMS characterization**

Dennis Alveringh - Salland Engineering

The MEMS market grows significantly due to the need for sensors in consumer applications like smartphones, IoT and cars. As for ICs, mass production of MEMS devices needs large scale testing solutions. However, testing usually requires a physical stimulus and/or readout, which cannot be easily applied using industry standard IC test equipment. In this session, several novel inertial and fluidic sensors will be briefly discussed and reviewed on their testability. Although these exotic microfabricated sensors are still in the research phase, their complex designs forecast the future challenges in MEMS testing.

Dr. Ir. Dennis Alveringh received the MSc degree in electrical engineering from the University of Twente, Enschede, The Netherlands, in 2013, on the subject of microfabricated multi-axis capacitive force/torque sensors. He joined the Integrated Devices and Systems Group, MESA+ Institute for Nanotechnology at the same university where he finished his PhD research on physical microfluidic sensors, e.g., noise limitations in Coriolis mass flow sensors, density sensors, relative permittivity sensors, and pressure/flow sensor integration for viscosity sensing. In 2018, he joined Salland Engineering (Europe) B.V. where he focuses on test development for ICs and MEMS.

14:45-15:15 BREAK

SEMICONDUCTOR FAILURE ANALYSIS and QUALITY & RELIABILITY

15:15-15:45 New technology requires new Quality standards for FA and QR

Kees Revenberg - MASER Engineering

The fast availability of small node advanced IC processes (EUV) have also impacted the device Q&R qualification process. A lot of Reliability impacting parameters have been studied for a limited amount of time before the devices went into mass production. Also the complex chip packaging technologies contributed to a new era of Q&R testing of these advanced devices. This presentation gives an overview of the changing Q&R approach, including the effort in standardization committees to keep control over the proper test simulation of real world failure mechanisms.

Kees Revenberg is co-founder and managing director of MASER Engineering. His primary focus fields are the corporate strategy, sales & marketing and finance. He graduated as BSc in electronics in 1982 at the University for Applied Technology in Zwolle, The Netherlands. He started his career as a chip test program developer with an independent test house in the Netherlands, followed by the start of their Quality & Reliability test services and managed that department for five years until the company stopped its activities in 1992. After starting MASER Engineering in 1993 he co-developed the company to a significant player in Europe for independent Test & Analysis services of micro- electronics with a central laboratory in Enschede, the Netherlands and sales offices in United Kingdom, Germany, Belgium and Israel.

IC DESIGN INNOVATIONS

15:45-17:00 How to improve SAR ADC performance & RF Power Class-E Amplifiers

Dr. Ir. A.J. Annema - University Twente

In-depth part of this talk reviews the basics of SAR analog-to-digital converters and then presents the latest innovations done at the IC-Design group that serves to improve SAR ADC system performance. Underlying these innovations is a way to circumvent a conventional fundamental limit to reach lower power consumption without lowering performance.

In this second session Dr. Ir. A.J. Annema will discuss basics of highly efficient, switched mode, RF power amplifiers: the class-E power amplifier. Ways to increase power efficiency, the impact of load impedance mismatch on reliability, linearity and ways to improve reliability by self-adaptation will be presented.

Anne-Johan Annema received the M.Sc. degree in electrical engineering and the Ph.D. degree from the University of Twente, Enschede, The Netherlands, in 1990 and 1994, respectively. In 1995, he joined the Semiconductor Device Architecture Department of Philips Research in Eindhoven, The Netherlands, where he worked on a number of physics-electronics-related projects ranging from low-power low-voltage circuits, fundamental limits on analog circuits in conjunction with process technologies, high-voltage in baseline CMOS to feasibility research of future CMOS processes for analog circuits. His current research interest is in physics, analog and mixed-signal electronics, and deep-submicrometer technologies and their joint feasibility aspects. This spans research from switched mode RF power amplifiers, references, optical functionality on CMOS, ADC and DAC and other circuits and systems combining physics, mathematics and electronics. Since June 1 2000 he is with the IC-Design group in the department of Electrical Engineering at the University of Twente, Enschede, The Netherlands where he is associate professor. He is also part-time consultant in industry and in 2001 he co-founded ChipDesignWorks. Since August 2017 he is program director Electrical Engineering.

Salland 17:30-18:30 Tour Salland Engineering facilities

Zwolle 19:00 Social Network Event (drinks and dinner)

Friday, September 14

08:30-09:00 Registration & Coffee/Tea

IC DESIGN AND TEST CHALLENGES

09:00-09:30 Sharing the passion in RF- and Smart Power IC Design

Tim Tiek - Dieco Electronics/Bruco

For 30 years Bruco has been developing custom ICs for Power Management and RF applications. And already for about 2 decades we have found a respected partner in Salland Engineering. We will share a bit of our experiences throughout these years, the fun and the challenges, not only in the design but also in setting-up the supply chain and delivering qualified devices to our customers.

Tim Tiek (1977) has been appointed the new CEO of Dieco Electronics on January, 1st 2018. Tim started his career at Ericsson, followed by various leadership positions in marketing, sales, engineering, business development and M&A at Sensata Technologies. He was the CEO of Super B Lithium Batteries for the last couple of years, leading exceptionally high revenue growth in marine, automotive and industrial markets while expanding the team accordingly. Under Tim's lead, Super B added large OEMs to its customer base, and prepared itself for the next phase of high volume automotive business.

09:30-10:00 Low power RF/wireless IC design

Martin Valfridsson/Johan Grumer - Shortlink

A journey from Ericsson consultant supplier with a set of strong ideas, to a company with a wide network of customers and suppliers to enable design of complex mixed signal RF and analog ASICs with end application in wireless and low power portable applications.

Martin Valfridsson - CEO of ShortLinks since 2017.

Johan Grumer - RF designer and Production Manager at ShortLink since 2005.

10:00-10:30 Test Challenges in 5G

Erwin Platter - NXP Semiconductor

The 5G market will ramp up quickly in the coming years, fueling applications in communications, automotive (WR). NXP's Business Line Smart Antenna Solutions has a long history of using our best in class in house SiGe QUBiC technology to provide best in class products into RF markets be it 4G LTE, basestations, WLAN – and now also 5G. In this presentation we will highlight the 5G market developments and the areas we play in. Main focus will be: how to develop industrial test solutions for these devices at frequencies up to 40-60GHz.

Erwin Platter (Grave, 12 February 1969) Test & Product Engineering Manager NXP, BL Smart Antenna Solutions. He has more than 23 years of experience in the test and product engineering domain and has a bachelor degree in Micro Electronics. He worked for Philips Semiconductors later on transferred into NXP, ST Ericsson & Salland Engineering. Since 2015 back at NXP in his current role.

10:30-10:45 BREAK

THE FUTURE OF ATE

10:45-11:15 Chroma's Prospect in Semiconductor Test

Maxine Tu/Martin Lai - Chroma ATE

This paper is about Chroma's Past, Presence and future vision on automatic testing and handling related to the Semiconductor Device Trends. It addresses as well the Test Challenge & Opportunity for WLCSP, SLT, Thermal...etc.

Maxine Tu is sales manager of Chroma ATE which is an IPO enterprise from Taiwan specializing in test measurement equipment as well as test related turnkey solutions for 35 years. Maxine brings 20 years of sales PM experience accumulated from various industrials including consuming electronics, memory and semiconductor to Chroma. She successfully penetrated the business to some of the most well-known Semicon giants such as Qualcomm, Broadcom, nVIDIA, MediaTek, Microsoft, Intel, Micron, etc. Today Maxine is not merely overseeing Chroma handler business among continentals but also consolidates the system solutions with multiple integration expertise.

11:15-11:45 Trends in ATE instruments

Chris Hartshorn - ElevATE Semiconductor

This abstract is about trends in Automatic Test Equipment Test channel-electronics. It highlights several challenges in ATE-ASIC designs for high density Burn-In and ATE systems, like mechanical, thermal and electrical. Next to this, pros and cons of different architectures will be addressed as well as the importance of having a good overall supply ECO system with end customers and parties like Salland.

Chris Hartshorn holds a Bachelors degree in Electrical Engineering and Mathematics from Colorado State University as well as Associates degrees in Physics and Communications/Media. He has 15 years of semiconductor marketing and sales experience in the ATE industry while working at Semtech and Intersil.

11:45-12:15 Production Test of cm and mmWave devices

Jan Peeters - Xcerra

This abstract is about the challenges in production test of cm and mmWave devices. It addresses the technical challenges of signal transmission integrity in production test cells and how to solve this. As well as how to generate and measure these signals in high volume production environment.

Jan Peeters was born in Belgium in 1960. He received his Engineering degree in Electronics in 1984. In 1985, he started working on test equipment at Electronic Instruments, a distributor of test equipment manufactured by STS, Axiom and Asix. Jan joined Semiconductor Test Solutions (STS) in 1991 and has worked for what is currently known as Xcerra for 27 years in a variety of positions. As Applications Engineer, European Applications Mgr, Business Development Mgr and today as Global Account Mgr.

12:30-13:30 LUNCH

13:45-14:00 Semiconductor Business in the Netherlands

Roel Fonville - BCSEMI

Introduction to BCSEMI NL & Dutch Semicon Ecosystem; specific activities & initiatives will be discussed, like: CITC (chip packaging) & Silicon Europe.

Roel Fonville is chairman of the board of the Business Cluster Semiconductors Netherlands since 2010. He had a career of more than 30 years at Royal Philips, during which he held various positions in R&D, Business Management and General Management in Philips Components, Philips Semiconductors and Philips Healthcare. He was the first Director of the Strategic Area Health at the Eindhoven University of Technology, focusing to apply novel technology from the university in healthcare applications. He was chairman of the Top Team Life Sciences and Health that developed the plan for the Top Sector for the Dutch government in 2011. Roel has served in a number of supervisory boards. Currently he is chairman of the supervisory board of Mikrocentrum in Eindhoven and of the board of Novio Tech Campus in Nijmegen. Roel holds a master degree in Chemistry from the University of Groningen.

14:00-14:30 Is Big Data the next big thing for Semiconductor Test?

Rick Burns - Teradyne

PCs were a primary driver of the semiconductor industry from the 90's through 2008, and mobile phones have been the primary driver since. But with mobile phone unit growth topping out towards the end of the decade, what comes next? Teradyne sees emerging applications utilizing big data and "intelligence" processing coming to everything from "smarter" smart phones and autonomous vehicles, to personalized healthcare. This will not only fuel a new wave of AI processors, but will drive storage and connectivity to new heights.

Rick Burns currently serves as Vice President of Engineering for Teradyne's Semiconductor Test Division. Since joining Teradyne in 2007, Rick has focused on combining industry standard technologies with Teradyne's differentiated instrumentation and high performance software skills to lower development and product costs. Prior to joining Teradyne, Rick led Mindspeed Technologies' Wide Area Networks (WAN) Communications Division as Senior Vice President and General Manager. Previously Mr. Burns developed numerous semiconductor components and systems as Mindspeed's Vice President of Engineering and, prior to Mindspeed's spinoff from Conexant Systems, as Conexant's Vice President of Engineering for Broadband Internet Systems. Before joining Conexant Systems in 1997, Mr. Burns led subsystem development based on custom integrated circuits for a wide range of military and communication product groups at Hughes Aircraft Company. Mr. Burns is an analog integrated circuit designer by training, holding a B.S. Physics from UCLA and an M.S. Electrical Engineering from CSUN.

SUPPLY CHAIN PARTNERS

14:30-15:00 Designing unnecessary costs and complexity out of advanced Hardware

Jordan MacKellar/Peter MacMichael - PTSL

PTSL are a world leader in delivering advanced ATE test hardware solutions to their blue chip customers globally. A technically driven company with a proven track record of pioneering engineering solutions to the most challenging test floors in the world. We will present on the benefits of the IABC Probecard technology in conjunction with our streamlined turnkey model which not only takes the manufacturing challenges out of hardware manufacture, but reduces the cost and cycle time.

Jordan MacKellar - Jordan is CEO and co-founder of PTSL. He is a former test engineer with over 20 years Contactor and PCB experience, and held various Engineering and Management positions with test hardware vendors prior to co-founding PTSL in 2009.

Peter MacMichael - Peter is Business Development Manager at PTSL. He has over 20 years' experience in ATE hardware, having held Mechanical Design, PCB Design, Applications Engineering, and Sales positions within the industry before taking on his commercial role leading PTSL Customer Operations in Europe.



	15:00 - 15:30	Spare time/walk to Salland
Salland	15:30-16:00	Guest Registration
	16:00-17:00	Formal and Official Opening
	17:00-19:00	Social Network Event (drinks and fingerfood)
	19:00-20:30	Dinner buffet