

WORKSHOPS AND LAB COURSES 2020

Fraunhofer IZM is a part of



**Forschungsfabrik
Mikroelektronik**
Deutschland

**Fraunhofer Institute for Reliability
and Microintegration IZM**

Gustav-Meyer-Allee 25
13355 Berlin, Germany

Phone +49 30 46403 100
Fax +49 30 46403 111

info@izm.fraunhofer.de
www.izm.fraunhofer.de



For updates please check:
www.izm.fraunhofer.de/events

CONTENTS

Fraunhofer IZM	04
Our Event Formats in Brief	06
Events at a Glance	08

■ SYSTEM DESIGN

EMC Optimized Design – Parasitics in Power Electronics	14
EMC in Power Electronics	16
Wide-Bandgap User Training	18
Modern Power Semiconductors and their Packaging	20

■ INTEGRATION TECHNOLOGIES

Wire Bonding Seminars for Even More Technological Competence	24
Photonic Packaging – Robust Optical Fiber-to-Chip Coupling	26

■ MATERIALS & RELIABILITY

How to Optimize Plastics Recycling to Obtain High Quality Polymers for Circular Electronics?	30
---	----

System Reliability in Assembly and Interconnection Technology	32
Compliant Environmental Management in the Electronics Industry	34
Ecodesign Learning Factory	36
Reliability Assessment of Electronic Systems	38

■ WHERE TO FIND FRAUNHOFER IZM

Research Fab Micoelectronics Germany	42
High Tech for Hardware Start-Ups: “Start-A-Factory”	44
Young Talents at Fraunhofer IZM	46
Fraunhofer IZM at SMTconnect 2020	48
Electronics Goes Green 2020+	50

■ SERVICE

Registration	54
How to Get There	56
Hotels near Fraunhofer IZM	58
Imprint	60

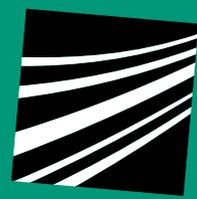
FRAUNHOFER IZM

As part of the Fraunhofer-Gesellschaft, Fraunhofer IZM is fully dedicated to the world of applied research and commissioned industrial research. The institute's task is the development of assembly and interconnection technology and system integration in multifunctional electronics.

With more than 400 staff members, it produces revenue of approx. €40 million, including more than 80 percent from research commissions. In addition to our main premises in the heart of Berlin, Fraunhofer IZM also maintains a presence in the electronics powerhouse of Dresden and is part of the iCampus in Cottbus. The institute benefits from its close cooperation with the Technical University of Berlin and other science and research institutes. Since the foundation of Fraunhofer IZM, the cooperation with the TU Berlin has been ongoing and productive in particular in the area of basic industrial research and is reflected in the combined role of the institute's director as full professor at the university.

The four departments of Fraunhofer IZM are committed to the advancement of science and technology. Innovative trending topics as well as established fields of practice are being promoted across disciplinary and technological boundaries. For a long time we have understood that the application of new products has direct relevance for their original development.





WORKSHOP

LAB
COURSE

INDUSTRY
WORKING
GROUP

CUSTOM
EVENTS

OUR EVENT FORMATS IN BRIEF

■ WORKSHOP

In our workshops, you have a chance to build up a solid store of knowledge about many aspects of system integration and interconnection technology in electronic systems. This can be a first introduction to a novel field of practice that is pushing the state-of-the-art or a refresher on the established know-how in an area that Fraunhofer IZM has been helping to develop for a long time. You can expect lectures, group discussions, and optional practice demonstration or laboratory tours. Depending on the contents, the workshops will be offered over one or two days.

■ LAB COURSE

Be a part of a small and dedicated group of up to 12 participants and get a close-up introduction to innovative technologies and learn to use the equipment yourself. Our lab courses are offered as applied practitioners' courses and in combination with more theoretical training in the form of lectures and group discussions. Each course usually takes between two and three days.

■ INDUSTRY WORKING GROUP

The working group is a forum dedicated to discussing and exploring the challenges and solutions in research and practice with our partners in the industry. The members meet regularly throughout the year to share and get involved in new trends and developments. The working groups are organized and hosted by Fraunhofer IZM.

■ CUSTOM EVENTS

You want to offer a larger group of your staff training in a specific subject matter or area of expertise? Then book a very special custom training at your company or at the Berlin premises of Fraunhofer IZM. We will work with you to prepare the precise contents and topics for your needs.

Contact us:

Georg Weigelt

georg.weigelt@izm.fraunhofer.de

 Event will be held in German.

 Event will be held in English.

OVERVIEW 2020

EVENTS AT A GLANCE

January

- 21.01. ■ How to Optimize Plastics Recycling to Obtain High Quality Polymers for Circular Electronics?

February

- 19.02. ■ System Reliability in Assembly and Interconnection Technology

March

- 12.–13.03. ■ Ecodesign Learning Factory
30.–31.03. ■ EMC Optimized Design – Parasitics in Power Electronics
tba ■ Compliant Environmental Management in the Electronics Industry

April

- 28.–29.04. ■ Photonic Packaging – Robust Optical Fiber-to-Chip Coupling

May

- 04.05. ■ System Reliability in Assembly and Interconnection Technology

June

- 22.–23.06. ■ EMC in Power Electronics
tba ■ Compliant Environmental Management in the Electronics Industry

September

- 21.–22.09. ■ Wide-Bandgap User Training

October

- 08.–09.10. ■ EMC Optimized Design – Parasitics in Power Electronics
14.10. ■ System Reliability in Assembly and Interconnection Technology

November

- 09.–11.11. ■ Modern Power Semiconductors and their Packaging
tba ■ Compliant Environmental Management in the Electronics Industry



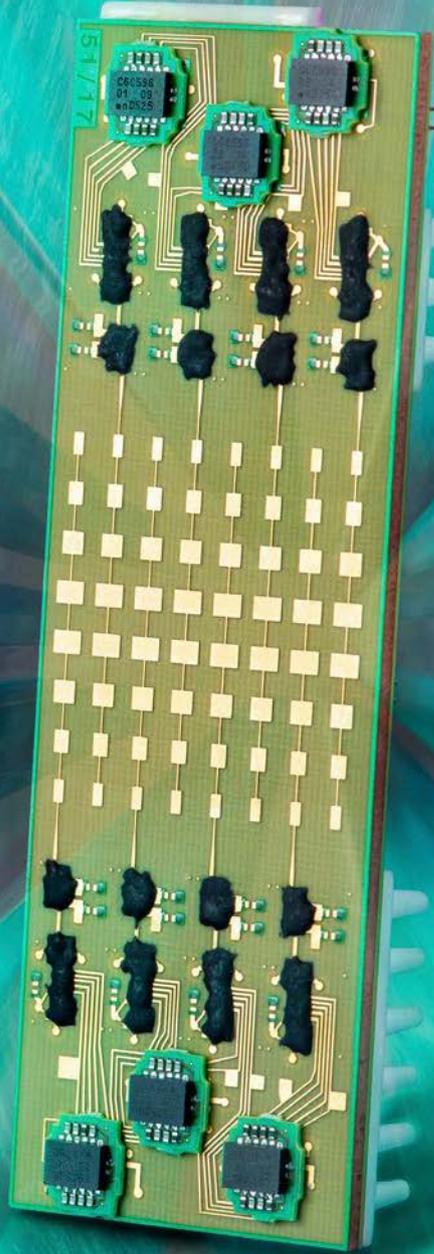
OVERVIEW 2020 EVENTS AT A GLANCE

Fall

- tba ■ Ecodesign Learning Factory
- tba ■ Reliability Assessment of Electronic Systems

All Year Long

- Wire Bonding Seminars for Even More Technological Competence



SYSTEM DESIGN



LAB COURSE EMC OPTIMIZED DESIGN – PARASITICS IN POWER ELECTRONICS



Contents:

Designing power electronic circuits requires a deep understanding of its electromagnetic compatibility (EMC). This has to be acquired individually by every engineer starting with power electronics, which is costly and time-consuming. This lab course gives an insight into the underlying effects of EMC in power electronics by directly carrying out experiments.

Various examples for good solutions are shown and finally every attendant designs his own system that will be checked by the course instructor.

The Lab Course is organized jointly by the European Center for Power Electronics (ECPE) and Fraunhofer IZM Berlin.



Duration

2 days

Dates

30.–31.03.2020, 08.–09.10.2020

Venue

Fraunhofer IZM, Berlin

Costs

618,75–825 €

Target Group

Engineers and technicians from the development and production of power electronic systems

More

Information

www.izm.fraunhofer.de/lc_5

Contact

Lena Somschor

lena.somschor@ecpe.org

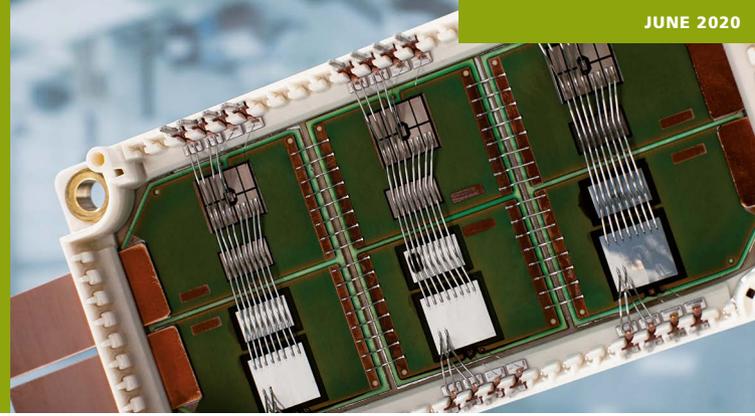


WORKSHOP EMC IN POWER ELECTRONICS

Contents:

- EMC mechanisms and their explanation
- Design strategies for system partitioning, grounding and layout
- Filter calculation and layout

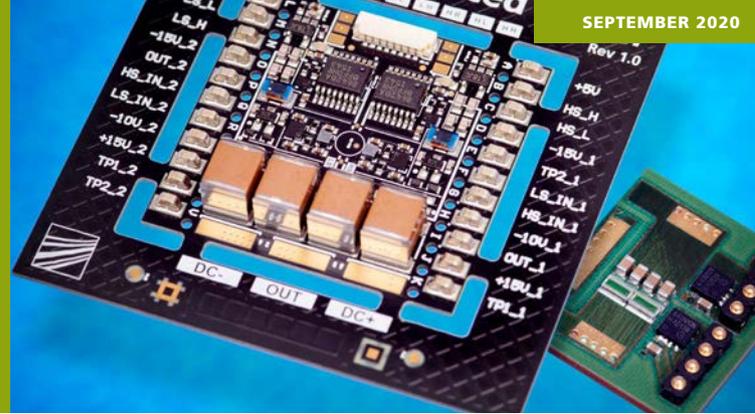
With increasing switching speed the internal EMC of circuits becomes more tricky to achieve. Measurement and control signals are disturbed by switching events and even the switches themselves show undesired switch on events. A proper concept how to partition the device, how to set up the grounding and how to identify and route the critical tracks is required. The course gives a first insight into the relevant parasitic properties, the interference mechanisms, the countermeasures on design level and the strategies to develop EMI filters.



Duration	2 days
Date	22.–23.06.2020
Venue	Eindhoven, The Netherlands
Costs	165–620€
Target Group	Students and professionals with power electronics or EMC background
More Information	www.izm.fraunhofer.de/ws_emc
Contact	Lena Somschor lena.somschor@ecpe.org



WORKSHOP WIDE-BANDGAP USER TRAINING



Contents:

Wide-bandgap (WBG) semiconductors are the next generation of power electronics. ECPE is currently cooperating with Japan on SiC and GaN based systems. This tutorial was initially prepared in the framework of the CLINT-WPE project to convey practical know-how to engineers working with SiC and GaN devices.

Efficient system integration is the key to exploit the full potential of WBG semiconductors. Power electronics developers need to take into account that high switching speed and frequencies and high power density establish special demands on other system components.

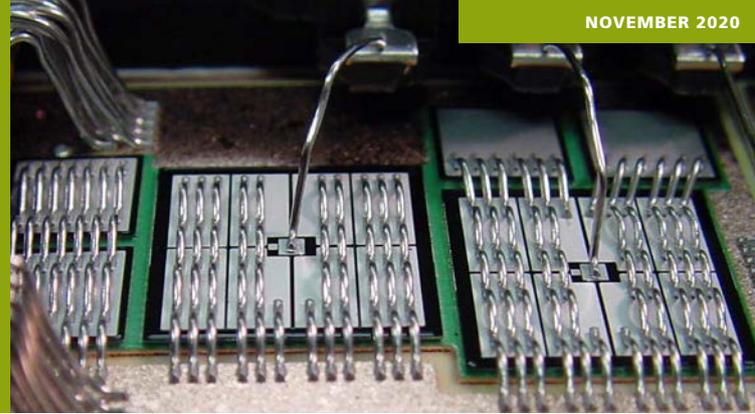
This two day tutorial addresses itself to all aspects of WBG system integration – from the choice of semiconductor components to design options and how to cope with parasitics, EMC and inductance at high switching frequencies. Another topic is test methods – both for electric tests of new power semiconductor components as well as robustness and reliability of modules and systems.



Duration	2 days
Date	21.–22.09.2020
Venue	Fraunhofer IZM, Berlin
Costs	165–580 €
Target Group	This event is intended for engineers and technicians who work with WBG devices. Efficient system integration and practical aspects are core components of this course.
More Information	www.izm.fraunhofer.de/ws_18
Contact	Lena Somschor lena.somschor@ecpe.org

WORKSHOP

MODERN POWER SEMICONDUCTORS AND THEIR PACKAGING



Contents:

The main component of modern power electronics circuits is the semiconductor power switch. This course presents the fundamentals of power switches operations from a physical point of view, together with the specific peculiarities and the reason to use them in a special application. An overview of different packaging technologies and their properties, advantages and disadvantages, is also given. Requirements from the applications and possibilities to tackle them with a semiconductor package solution will be proposed.

The course is divided into two parts.

Part one tackles semiconductors and their theory:

- Basics like pn junction fundamentals, bipolar and field effect transistors
- Comparison between semiconductor materials like silicon, SiC and GaN
- Fundamental mechanisms taking place during switching operations
- Driving technologies for power semiconductors

Part two introduces packaging theories:

- Introduction, analyzing and discussing packaging technologies for modern power semiconductors
- Interconnection solutions

The participants will be grouped and asked to work in teams on a real design. A final one day lecture is included where groups will compare and discuss the achievements and the design choices.



Duration

3 days

Date

09. – 11.11.2020

Venue

Aalborg University, Aalborg, Denmark

Costs

6,000 DKK for PhD students, 8,000 DKK for the industry

Target Group

PhD students and engineers

More

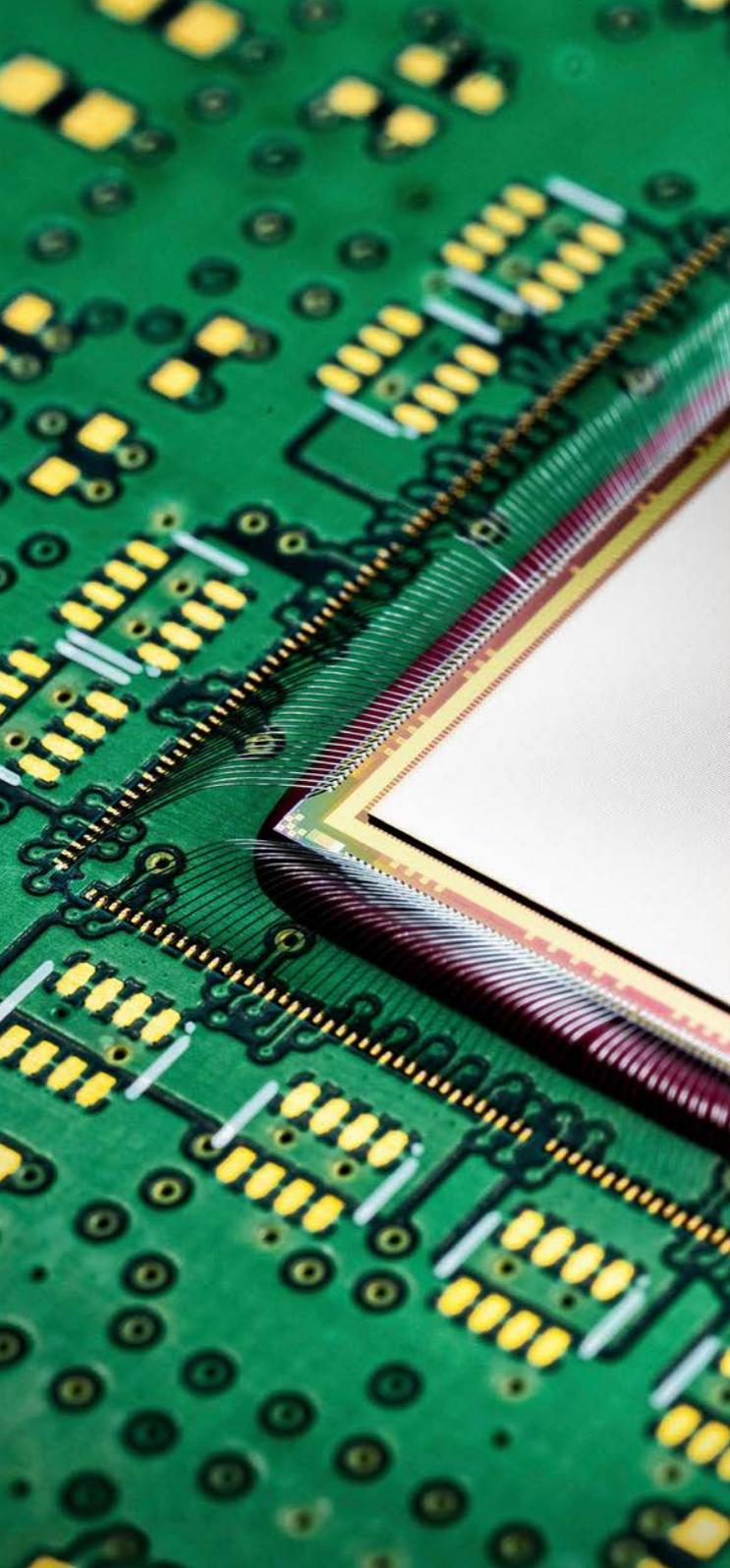
Information

<http://phdcourses.dk>

Contact

Prof. Eckart Hoene

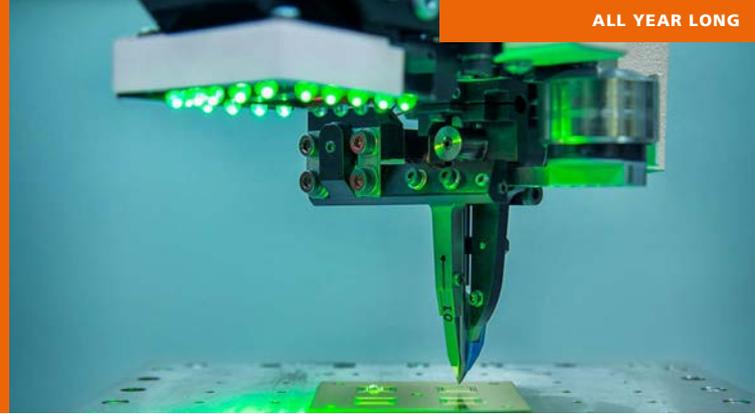
eckart.hoene@izm.fraunhofer.de



INTEGRATION TECHNOLOGIES

WORKSHOP

WIRE BONDING SEMINARS FOR EVEN MORE TECHNOLOGICAL COMPETENCE



Contents:

Would you like to qualify your company's employees as proven experts in the field of wire bonding? Do you want to achieve a faster process optimization, more robust results, better documentation and more accurate root cause analysis?

With more than 800 participants and more than 20 years of market presence, the wire bonding seminars of Fraunhofer IZM together with Bond-IQ are a highly successful seminar format that is recognized and recommended by large and small companies in German-speaking countries and worldwide. Whether welcoming new employees as newcomers to the wire bonding technology or as further training for process experts who have been successful for many years – an investment in knowledge still brings the best return on invest.

We offer special seminars around the following topics:

- Basics of wire bonding technology
- Quality inspection and process optimization
- Reliability and failure analysis
- Design and material selection
- Practical exercises with own samples



Duration

1–2 days

Dates

www.bond-iq.de/termine

Venue

Fraunhofer IZM, Berlin

Target Group

Process supervisors, developers, managers responsible for production/ quality/ process, innovators, technology managers, supplier management

More

Information

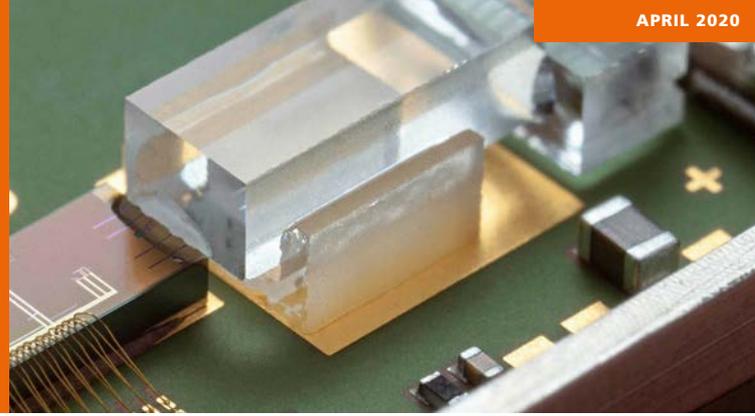
www.bond-iq.de/seminare

Contact

Stefan Schmitz

stefan.schmitz@bond-iq.de

WORKSHOP PHOTONIC PACKAGING – ROBUST OPTICAL FIBER-TO-CHIP COUPLING



Contents:

Advances in photonic integration in data communication are being powered by the increasing demand for more bandwidth and higher channel density in systems. Devices using Photonic Integrated Circuits (PIC) require 3D-integration, creating new challenges in terms of optical fibre attachment. Optical mode matching, mechanical robustness, power stability, connector pitch, and cost-efficient assembly are just a few of the many crucial issues to be considered.

High precision alignment is key, yet the lack of standards for photonic interconnects is hampering the evolution of low-cost, generic solutions. Many challenges remain to be mastered by OEM manufacturers, suppliers, and service assemblers in their efforts to cope with the very tight tolerances involved. High-efficient coupling has to be achieved and maintained for communication and sensory devices to operate correctly.

The 2020 Photonics Packaging workshop at Fraunhofer IZM addresses this spectrum of pressing issues in the field by focusing on assembly technologies for optoelectronic and photonic integration on the board, package, and device levels.



Duration

2 days

Dates

28.–29.04.2020

Venue

Fraunhofer IZM, Berlin

Costs

780 €

10% discount for members of one of the Innovation Networks for Optical Technologies: OptecNet Deutschland, EPIC

Target Group

Scientists and engineers involved in photonic packaging: Process technology, materials and equipment, as well as decision makers.

More

Information

www.izm.fraunhofer.de/ws_20

Contact

Dr.-Ing. Henning Schröder

[henning.schroeder@](mailto:henning.schroeder@izm.fraunhofer.de)

izm.fraunhofer.de



MATERIALS & RELIABILITY

WORKSHOP

HOW TO OPTIMIZE PLASTICS RECYCLING TO OBTAIN HIGH QUALITY POLYMERS FOR CIRCULAR ELECTRONICS?

Contents:

While there are established solutions for recovering the metal fractions from waste electrical and electronic equipment (WEEE), recycling of mixed plastics into clean, recyclable high-quality polymers remains a major challenge.

The goal of this workshop is to elaborate together with pre-processors, recyclers and manufacturers how to improve recycling steps to produce high-quality polymers which can be reused in electronic applications. Insights from the European project PolyCE (www.polyce-project.eu/) will be presented considering different steps along the value chain such as optimized clustering, recommendations on pre-processing, examples how to use recycled plastics in new electronic applications and considerations on design for recycling.

Different actors along the value chain like pre-processors, plastic recyclers or moulders can contribute to the discussion for producing high-quality polymers to be used in electronic applications.



Duration

0,5 days

Dates

21.01.2020

Venue

Hotel Sheraton, Salzburg, Austria

Costs

150€–190€

The participation to this workshop is linked to the participation at the 19th International Electronics Recycling Congress IERC 2020.

Target Group

WEEE pre-processors, WEEE recyclers, plastic recyclers, EEE manufacturers, policy makers, compounders

More

Information

www.izm.fraunhofer.de/ws_19

Contact

Gergana Dimitrova
gergana.dimitrova@izm.fraunhofer.de



INDUSTRY WORKING GROUP SYSTEM RELIABILITY IN ASSEMBLY AND INTERCONNECTION TECHNOLOGY



Contents:

- Longterm reliability and field behavior of electronic systems
- Robustness and life cycle assessment
- Design for reliability
- Specific failure mechanisms and their interaction
- Practices and methods for evaluating the reliability of systems
- Aging and failure analysis

The working group offers a forum for discussing challenges and solutions in research and industrial practice with partners in the industry.

Background:

With the introduction of lead-free connection technology in July 2006, the electronics industry has implemented parts of the EU's RoHS directive. In late 1999, Fraunhofer IZM founded an industry working group on lead-free interconnection technology to help the electronics industry achieve this transition in their processes. In 2013, this group became part of the working group on system reliability in mounting and interconnection technology.

The working group is supported by the association of the electrical engineering and electronics industry ZVEI (Zentralverband Elektrotechnik- und Elektronikindustrie e.V.) and the electronics designers' association FED.



Duration

1 day

Dates

19.02.2020*

04.05.2020**

14.10.2020*

Venue

* Fraunhofer IZM, Berlin

** Fairground, Nuremberg

Costs

995 € annual attendance fee per company

Target Group

Engineers and technicians who are confronted with the challenge of ensuring reliability of electronic systems

More

Information

www.ak-syzu.de/

Contact

Felix Wüst

felix.wuest@izm.fraunhofer.de



INDUSTRY WORKING GROUP COMPLIANT ENVIRONMENTAL MANAGEMENT IN THE ELECTRONICS INDUSTRY

Contents:

- The status quo of domestic and international legislation on environment and electronics
- Methods and tools for developing environmentally sound products
- Declaring materials

Background:

European and international legislation is constantly evolving: RoHS, REACH, and CLP are placing new demands on technology and materials management; WEEE is developing further, and the Ecodesign Directive is being applied to more and more product categories. Thresholds and limits are tightened and new standards introduced. Beyond these specific legal concerns, other current trends like carbon footprints, eco assessments, new materials, and the issue of conflict minerals are affecting the work of electronics manufacturers.

The working group helps its members anticipate developments that affect how they design and produce fully compliant products. Challenges and solutions are discussed and empirically investigated with partners in science and industry. The working group is supported by the electronics designers' association FED. It is organized and hosted by Fraunhofer IZM.



Duration

1 day

Dates

March, June and November 2020:
The exact dates will be published on the website of the working group at the turn of the year.

Venue

Fraunhofer IZM, Berlin

Costs

995€ annual attendance fee per company

Target Group

Managers in environment management, CSR, risk management, technical sales, procurement, and supply chain management in the electronics industry; legal and consulting professionals working on environmental product standards; product testing managers, laboratory directors

More

Information

www.ak-rku.de/

Contact

Karsten Schischke
karsten.schischke@izm.fraunhofer.de

WORKSHOP ECODESIGN LEARNING FACTORY



Contents:

The Ecodesign Learning Factory, a two-day interdisciplinary workshop, will teach you practical and effective methods of developing sustainable product service systems and business models for the circular economy by combining user-centric design, design thinking and life-cycle thinking.

Benefits to participants:

- Fast and intensive introduction to ecodesign and the circular economy
- Creative, innovative and entertaining approaches to learning
- Practical application of what you have learned

Benefits to companies:

- Circular economy toolkit: Get efficient and advantageous tools, methods and practices to create positive impact.
- Assess and improve your circular performance: Analyse current products and services and future opportunities. Understand life cycles and environmental impacts.
- Drive eco-innovation: Create sustainability-led innovations by solving ecological challenges step by step.
- Explore new business opportunities: Develop circular business models to improve sustainability and help your business to grow.

- Circular strategies: Learn how to embed the principles of the circular economy within your organization.

We guide you along your journey towards the circular economy. In case you are interested in a training within your company, your organization, your association or other interest groups, feel free to contact us at lernfabrik@izm.fraunhofer.de and we can discuss the content and condi-



Duration

2 days

Dates

12.-13.03.2020, additional public training is planned for Sep./ Oct. 2020

Venue

Fraunhofer IZM, Berlin

Costs

Individual training:
499€ (early bird, unt. 31.12.2019)
625€ (regular)

Inhouse trainings start at 11,000€
Professional product designers and developers, engineers and anyone interested in developing circular economy solutions

Target Group

More

Information

www.izm.fraunhofer.de/lf_1

Contact

Dr. Max Marwede

lernfabrik@izm.fraunhofer.de

WORKSHOP

RELIABILITY ASSESSMENT OF ELECTRONIC SYSTEMS



Contents:

- Definitions and terminology
- Understanding the necessity of standards
- Understanding and application of different system analysing methods
- Impact of stress forces and failure mechanism
- Empirical and physical failure models
- Simulation methodology
- Implementation of stress tests
- Interpreting and understanding test data
- Understanding and evaluating reliability parameters / values
- Ensuring reliability by condition monitoring

The tutorial is organized by the Institute's Department of Environmental and Reliability Engineering, which supports new technologies on their path towards full commercial maturity. The course introduces the methods and backgrounds of application-specific reliability assurance processes in the development and production of electronic systems.

The evening program on the first day will also offer an opportunity for tutors and participants to share and discuss special aspects of their work.



Duration

2 days

Date

Fall 2020

Venue

Fraunhofer IZM, Berlin

Costs

980 €

Target Group

Engineers and technicians who are confronted with the challenge to ensure reliability of electronic systems

More

Information

www.izm.fraunhofer.de/ws_12

Contact

Dr. Johannes Jaeschke

[johannes.jaeschke@](mailto:johannes.jaeschke@izm.fraunhofer.de)

izm.fraunhofer.de

Dr. Stefan Wagner

[stefan.wagner@](mailto:stefan.wagner@izm.fraunhofer.de)

izm.fraunhofer.de



WHERE TO FIND FRAUNHOFER IZM

RESEARCH FAB MICROELECTRONICS GERMANY

One-stop shop for technologies and systems

To reinforce the position of Europe's semiconductor and electronics industry beside global competition, eleven institutes within the Fraunhofer Group for Microelectronics have, together with the Leibniz Institute for Innovations for High Performance Microelectronics (IHP) and the Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH), come up with a concept for a cross-location research factory for microelectronics and nanoelectronics.

The establishment of the Research Fab Microelectronics Germany is a unique offering available to the German and European semiconductor and electronics industry. The cooperation of a total of 13 research institutes and more than 2,000 scientists is already the world's largest pool for technologies and intellectual property rights within the area of smart systems.

This new form of cooperation will make a major contribution to strengthening European industry's competitiveness internationally.



Contact

Rolf Aschenbrenner
rolf.aschenbrenner@
izm.fraunhofer.de

www.forschungsfabrik-mikroelektronik.de

HIGH TECH FOR HARDWARE START-UPS »START-A-FACTORY«

Reshaping the Start-Up Ecosystem

Start-a-Factory wants to become the new iteration of the legendary Silicon Valley start-up garage: Equipped with high-tech facilities and tailored specifically to the needs of young enterprises, it creates a perfect opportunity for the step from the first idea to a tangible prototype ready for industrial production.

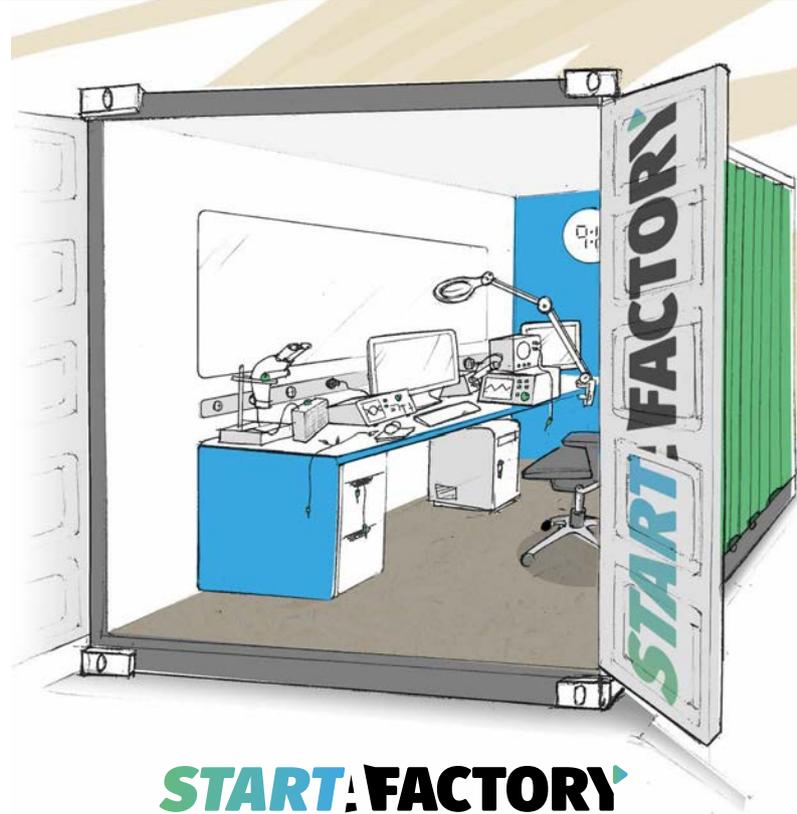
Services:

- Cost-efficient and flexible access to technology
- Individual solutions for later reproduction on standard equipment
- Space and facility use concepts
- Development and prototype construction
- Modular and adaptable for most environments

We invite all innovative SMEs and hardware start-ups in the early stages of development to test the implementation of their new products and develop the iterative processes needed for full-scale production.

Your Benefits:

- Flexible and modular laboratory facilities
- Access to Fraunhofer expertise for product and prototype development
- Advice on value chain optimization
- Tangible results in record time



START-A-FACTORY

advanced tools
for your ideas

Contact

Ulf Oestermann
ulf.oestermann@
izm.fraunhofer.de

www.izm.fraunhofer.de/saf

YOUNG TALENTS AT FRAUNHOFER IZM



The future of our work depends on the talent and potential of the young researchers of tomorrow. We are committed to fostering that potential, which is why Fraunhofer IZM has been offering combined apprenticeships and vocational education as well as school and university internship placements for almost 20 years.

We have been expanding our activities in the area with school partnerships, Girls' Day activities, and the special Fraunhofer Talent Take Off. All of these give interested young people an insight into the vocational and academic education opportunities in STEM fields and into the unique world of the Fraunhofer Institutes.

Get Girls Going – Girls' Day at Fraunhofer IZM

The Girls' Day is the world's largest career inspiration initiative for girls in secondary education.

At Fraunhofer IZM, this year's Girls' Day on March 26, 2020, gives you a chance to get active in our laboratories and experience microelectronics close and personal. All girls in school years 6 and 7 are welcome!

www.girls-day.de

Talent Take Off – Get On Board

Our degree orientation program »Talent Take Off« gives you an exciting peek behind the curtains of applied research and will answer your questions about working at Fraunhofer. The project is meant for school and university students. It includes three modules, chosen to match your age and experience.

www.fraunhofer.de/talent-take-off

Contact

Stefan Ast

stefan.ast@izm.fraunhofer.de

ASSEMBLY TUTORIALS PRODUCTION LINE FUTURE FAIR PACKAGING

FRAUNHOFER IZM AT SMTconnect 2020

The SMTconnect is Europe's premier exhibition on system integration in microelectronics, focusing on design and development, circuit boards, components, assembly and interconnection technologies, and new testing equipment. We invite you to be there from 5 – 7 May 2020 and visit Fraunhofer IZM at Booth 434 in Hall 5.

Meet us for a chance to get a close-up look at the newest trends in assembly and interconnection technology on the frontlines of the IZM labs. We will introduce you to current applications in industrial and power electronics and showcase our newest research into WLP, substrate integration, assembly technology, and system reliability.

Future Packaging Production Line powered by Fraunhofer IZM

Hall 5 gives you an opportunity to see a complete production line in action and learn how modern assembly production is responding to the increasingly demanding standards expected by the markets and the users in the real world. With three live demonstrations per day, you have a chance to experience the entire production value chain and get an insight into the potential of the connected world of Industry 4.0 and the Internet of Things.

Be there and get your business fit for the future!



ELECTRONICS GOES GREEN 2020+



The upcoming Electronics Goes Green Conference 2020, which will take place at Seminaris CampusHotel Berlin from September 1–3, 2020, is an outstanding event for the growing global community of scientists, product developers, and business managers working on the task of improving the environmental properties of technologies and products along the value chain of the electronics and ICT industry. Over the past years the scientific topics and industrial implementation tasks have evolved with the same dynamics as the technology itself.

We would like to invite you to a scientific conference that explores the currently changing facets of today's and future green electronics. Fraunhofer IZM is very proud to be a stakeholder in this field and has been the organization behind the conference from the beginning.

The same way electronics persistently meanders between highest visibility and invisible functionality in all areas of our life, the same way we are tasked to follow and anticipate the visible and invisible ecological, economic and social implications of this growing diversity.

Please open your mind to these new shades of green electronics and share your thoughts and findings at the conference.





SERVICE

REGISTRATION



Registrations

Please register for the event you are interested in latest four weeks before its scheduled date to help us plan the event. You will be sent a written confirmation of your registration, which constitutes the registration agreement, as well as a digital invoice. In events of limited group size, registrations will be assigned in the order of receipt. If an event is already fully booked, we will inform you about any available replacement dates.

Collection and Processing of Data

With your registration, you consent to the collection and electronic storing of your personal data. We will treat your personal data confidentially and process it solely for the purpose of organizing the events of Fraunhofer IZM in accordance with applicable data protection regulations. You have the right to withdraw your consent to the collection and processing of your data at any time.

Event Fees

The event fees are tax exempt in accordance with Sect. 4 Nr. 22a UStG and typically include the costs for organizing the event itself as well as the documents and catering during the event (beverages during breaks and lunch).

Cancellation Policy

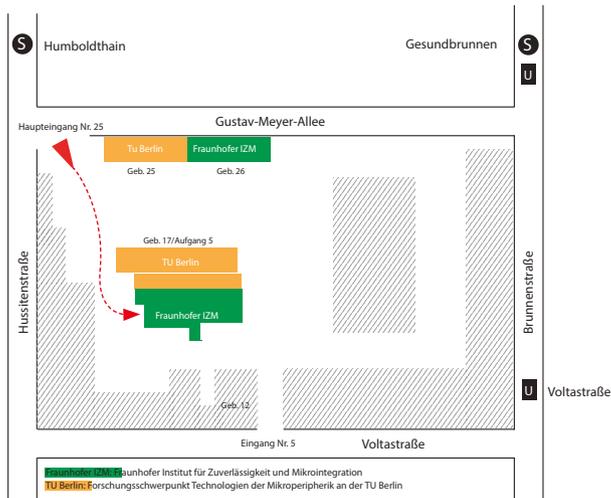
All cancellations must be made in writing, by email. No cancellation fees apply up to four weeks before the scheduled start of the event.

If we receive your cancellation up to one week before the scheduled start of the event, we will charge cancellation fees of 50 % of the total amount. The full amount will be charged in the case of cancellations after that point. Alternatively, you can nominate a different attendee in your place.

Cancelled Events

Fraunhofer IZM reserves the right to cancel scheduled events if the required number of attendants is not met or in cases of force majeure. In these cases, the event will be rescheduled to an alternate date if possible. Should this not be possible, you are entitled to cancel your registration free of charge. Any attendance fees already paid will be reimbursed. Any claims to a reimbursement of travel or accommodation costs or loss of working hours are excluded.

HOW TO GET THERE



By Car

From the A115, take the A100 toward Hamburg/Wedding. The A100 turns into Seestraße. Continue straight ahead, then turn right into Müllerstraße, which turns into Chausseestraße. From here, turn left into Liesenstraße. At the roundabout, take the second exit into Scheringstraße, which turns into Gustav-Meyer-Allee. Be aware that the area within the S-Bahn (overhead rail) was designated a low-emission zone in 2010. Only cars meeting specific low-emission standards are allowed in the zone.

By Rail

From Berlin Hauptbahnhof, catch the S-Bahn (overhead rail) line 5 toward Strausberg Nord or 75 toward Wartenberg and get out at S-Bahnhof Alexanderplatz. Here, transfer to U-Bahn (subway) line 8 toward Wittenau and get out at U-Bahnhof Voltastraße. The institute is about 10 minutes walk from the subway station.

By Plane

From Tegel Airport, catch Bus 128 to the stop Osloer Straße. Transfer to the U-Bahn line 8 toward Hermannstraße and get out at U-Bahnhof Voltastraße. The Institute is about 10 minutes walk from the subway station.

Berlin

Fraunhofer IZM
Gustav-Meyer-Allee 25
Building 17/3
13355 Berlin, Germany

HOTELS NEAR FRAUNHOFER IZM

Park Inn by Radisson Berlin Alexanderplatz

Alexanderplatz 7
10178 Berlin
Phone: +49 30 2389-0
info@parkinn-berlin.com
www.parkinn-berlin.de

Moxy (Marriott) Berlin Humboldthain Park

Hochstraße 2
13357 Berlin
Phone: +49 30 6840500
www.marriott.de/hotels/travel/berom-moxy-berlin-humboldthain-park

Wyndham Garden Berlin Mitte Hotel

Osloer Straße 116 a
13359 Berlin
Phone: +49 800 101 088 0
info@wyndhamgardenberlin.com
www.wyndhamgardenberlin.com



Hotel Graf Pückler

Schönwalder Straße 21
13347 Berlin
Phone: +49 30 460 629 0
ihr@netteshotel.de
www.hotel-graf-pueckler.de

Hotel Grenzfall

Ackerstraße 136
13355 Berlin
Phone: +49 30 343 333 00
erlebnis@hotel-grenzfall.de
www.hotel-grenzfall.de

Mercure Hotel Berlin City

Invalidenstraße 38
10115 Berlin
Phone: +49 30 308 260
h5341@accor.com
www.mercure.com/de/hotel-5341-mercure-hotel-berlin-city/index.shtml

IMPRINT

Published by

Prof. Klaus-Dieter Lang, Fraunhofer IZM
www.izm.fraunhofer.de

Copy Editing

Georg Weigelt, Fraunhofer IZM

Layout

mcc Agentur für Kommunikation GmbH
www.mcc-events.de

@ Fraunhofer IZM 2020

Photography

naftizin/Adobe Stock (10,11); Philips, Plastic material
by MGG Polymers (31); Anja Rottke/VDE (43); Kai
Abresch/fairnet GmbH (55); weedeesign/Adobe Stock
(40); MEV (59)

All other image rights Fraunhofer IZM or Fraunhofer IZM
together with: Janine Escher (Cover); Volker Mai (5, 12,
15, 17, 19, 22, 25, 27, 39); Volker Döring (21); MIKA-
fotografie (51); Frank Welke (52,57).