

*Invitation to:*

## 2<sup>nd</sup> 'European Expert Workshop on Reliability of Electronics and Smart Systems'

### 2014 EuWoRel

*Berlin, Oct. 28 (11 am) - Oct 29 (3 pm), 2014*

*Venue: Fraunhofer-Forum Berlin (A.-L.-Karsch-Str. 2, 10178 Berlin)*

#### **Dear Reliability Expert,**

You receive this invitation because we know you personally as an expert and strong advocate for reliability work. After the start in 2013, we would like to establish EuWoRel as an annual event. It shall become a platform addressing the concerns of reliability, robustness, and functional safety of new products and technologies in the field of electronics and smart systems. In particular, the directions of the further research on reliability methodology shall clearly be visible, not only for the electronics packaging community in industry and academia but also for the representatives of funding agencies at national and European levels.

#### **EuWoRel Workshop Effects**

The 2013 EuWoRel workshop was really successful and effective. It was dedicated to the discussion of the 'EPoSS White Paper on Smart Systems Reliability', which was jointly drafted by researchers from the three organizations Fraunhofer (Germany), Swerea IVF (Sweden), and IMEC (Belgium). Shortly before the workshop, the document was distributed among the reliability experts in leading European enterprises and thoroughly discussed at the workshop. Based on the initial feedback and further inputs as well as a SWOT analysis covering the research ecosystem, the 'White Paper' could be greatly improved. A consolidated version was published at the International conference on Smart System Integration in Vienna (March 2014). Furthermore, the 'White Paper' was presented and discussed in a Special Session at the International Conference EuroSimE in Gent (April 2014) involving representatives from EPoSS e.V. and the European Commission. Subsequently, the need for reliability research has clearly been given more attention in the new documents defining the scope of the calls in European research programmes. For example, the MASP 2014 (multi annual strategic plan) of the JU ECSEL that was issued in July 2014 refers to reliability methodology work as an integral part of research

and innovation activities in the way EuWoRel supports it at some 40 places across the document. This is an increase by more than factor 5 compared to the ICT work programme of H2020 created in summer 2013 and issued in Dec.13, i.e., before the 'EuWoRel activities' became effective. Therefore, we see the significant impact EuWoRel is able to make. Let's keep this momentum!

#### **Profile of 2014 EuWoRel**

In order to maintain the efficiency of the EuWoRel event, we would like to keep the time frame as well as the number and profile of the workshop participants unchanged. In this way, the real world needs in reliability methodology work occurring in electronics and smart system industries can be discussed most thoroughly. Afterwards, we will again inform the wider community of electronics packaging and smart system integration engineers about the results of this expert workshop and ask for feedback and comments. Then, we channel this information via EPoSS e.V. to the national and European funding agencies as input to their discussions on the next work programmes.

The structure of the workshop is adapted to the next phase of updating the H2020 work program now being well underway. Hence, the first day of

the workshop will be dedicated to engineering papers presenting results of reliability research such as new effects or failure modes, improvements in functional safety, advances in methodology approaches, progress made in terms of tests procedures and / or equipment developments. This way, the outcome of funded projects can be disseminated covering all three directions of reliability research mentioned by the 'White Paper':

- Improvement in the comprehensiveness and efficiency of experimental **reliability tests** and failure analyses
- Speeding up the reliability assessment by applying **virtual techniques** based on fully calibrated and validated numerical simulation approaches
- Avoidance of any unexpected failure by active **self-diagnosis**, self-healing and smart redundancy strategies

The second day will be dedicated to the new work programs and the corresponding future research projects. It will first introduce and discuss the **2015** edition of **MASRIA** (multi annual strate-

gic research and innovation agenda) and **MASP** of the JU ECSEL. These sessions will be led by Chapter Owners of the Part A 'Key Applications' chapters: **Smart Mobility, Smart Society, Smart Energy, Smart Health, and Smart Manufacturing**. The goal of these sessions is to review the chapters and to add or revise the wording so that the aspects of reliability, robustness, and functional safety are fully covered according to the actual industrial needs in automotive electronics, in lighting applications, for industrial use cases etc.

After lunch, **brokerage sessions** will be organized that allow presenting first ideas for the 2015 ECSEL research projects and meeting potential partners for the consortia. The focus will be set on **Smart Systems Integration** but the other three essential technologies (**Process Technologies, Design Technologies, and Cyber Physical Systems**) will also be addressed. These sessions will be moderated by representatives of the EPoSS e.V. They will provide good opportunities for networking and for reaching first arrangements towards the new project consortia.

## Agenda outline

After opening remarks and a short overview on the 'White Paper' and 'EuWoRel' process, the workshop will cover the following subjects:

### Day 1 (11 am – 6 pm)

1. Engineering papers on New Reliability Methodologies / Techniques / Approaches
  - Reliability tests and failure analysis
  - Virtual techniques based on numerical simulation
  - Self-diagnosis, self-healing and smart redundancy strategies

Three sessions with about 20 talks will present the latest results of funded projects.

### Day 2 (9 am – 3 pm)

2. Introduction and Revision of MASRIA and MASP 2015 of JU ECSEL
  - smart mobility
  - smart energy
  - smart manufacturing
  - smart health and smart society
3. Brokerage Discussions: New projects on reliability, robustness, and functional safety related to Smart Systems Integration and the other essential technologies covered by ECSEL

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The workshop is part of the activities of EPoSS, working group Key Enabling Technologies.

