

## Welcome to ISoRD 2014

The International Symposium on Robust Design is a dedicated meeting where academics and industry delegates meet to discuss the challenges and advances in robust design and related topics.

The principle benefits of robust design are widely accepted. Robustly designed products are less sensitive to variation and are therefore easier to produce, more reliable during operation with a more consistent quality. However, there is still a large gap between robust design in theory and robust design in practice during product development. Many of the current approaches are slow and difficult to use and often are only applicable at later stages when design change is less feasible.

The symposium has greater focus on applied robust design, focusing on operationalising robust design research for use in product development. The symposium has therefore been constructed as more hands on and dialogue based, with workshop exercises and software demonstrations as well as the usual podium and poster presentations.

ISoRD14 is hosted by the Robust Design Group at DTU Mekanik and is the official symposium of the Design Society affiliated Robust Design Special Interest Group – see [www.robustdesign.org](http://www.robustdesign.org) for more details. This year, ISoRD is proud to be sponsored by Novo Nordisk the world's leading provider of diabetes care and champions of Robust Design, and Valcon Design, the consultancy group pioneering the Six Theta® Robust Design methodology.

We hope that you enjoy the symposium and look forward to interesting discussions and a fruitful exchange of experiences as well as new ideas.

### Conference Venue

DTU - Building 101A  
Anker Engelunds Vej 1  
2800 Kgs. Lyngby  
Denmark

### WIFI at DTU Campus

Please see your name tag.

### Contact Us

Feel free to contact us any time at  
(+45) 27 89 87 71

### Delegates

To view the full list of delegates please visit:  
[www.robustdesign.org/ISoRD/delegates](http://www.robustdesign.org/ISoRD/delegates)

## Thursday - 14th August

- 8:00** Bus departs from Conference Hotel
- 8:30** Coffee
- 8:45** Registration
- 9:00** Welcome Introduction  
Thomas J. Howard, Head of Robust Design Group, DTU
- 9:10** Robust design, Predictable Innovation  
Niels Hansen, Chief Engineer, Novo Nordisk Device R&D
- 9:20** Denmark: Excellence in Mechanical Design  
Janus Juul Rasmussen, CEO Valcon Design
- 9:30** **Keynote 1**  
Robust Design Impact in Industry  
Martin Ebro, DTU/Valcon Design
- 10:00** Break  
**Oral Session 1:**  
**Robustness in Design**
- 10:30** **Industry Case 1**  
Prediction of Glass Cartridge Robustness in Assembly line Loading  
Torben Hansen, Novo Nordisk
- 11:00** Scaling Under Dynamic Uncertainty Using Laws of Growth  
Julian Lotz, TU Darmstadt
- 11:20** A Comparative Study on Tolerance Analysis Approaches  
Benjamin Schleich, FAU
- 11:40** Design Guidance for Robust Design  
Valter Loll, Loll Consult
- 12:00** Lunch
- 13:00** **Robust Design Workshop:**  
**A forensic engineering case**  
During this workshop the delegates will be placed into teams. They will be given a product and a case file with clues to the product's failure and the major incident that incurred.  
Included in the case files will be engineering drawings, specifications, reliability test results, CAD drawings and various other useful bits of information. Working in your groups you will discuss and analyse the design and work out what the problems were, how to solve the problem both in terms of a quick fix and in terms of long term design improvement.
- 15:00** Break  
**Robust Design Workshop** Continued
- 17:00** Bus departs from Conference
- 20:00** Conference Dinner  
Nørrebro Bryghus (meet at hotel reception at 19:30)

## Friday - 15th August

- 8:00** Bus departs from Conference Hotel
- 8:30** Coffee
- 8:45** Rapid results with robust design  
Torben Bygvraa Rasmussen, NNE Pharmaplan
- 9:00** **Computer Aided Robust Design session**  
CETOL 6σ tolerance analysis  
Sigmetrix GD&T Software  
OPTIMUS® - Advanced Design Exploration  
JMP - Statistical Discovery from SAS
- 10:15** Break
- 10:30** **Poster Session**
- 11:30** **Industry Case 2**  
Validation of Customer Requirements by System Simulation Taking Tolerances and System Variations into Account  
Matthias Ehlert, BMW
- 12:00** Lunch
- 12:00** **Oral Session 2**  
**Robustness in Production**
- 13:00** **Keynote 2**  
Continuous Process Capability Improvement at Lego  
Rikke Andersen, Six Sigma Engineer / LEGO System A/S
- 13:30** Robust Design Principles to Evaluate Additive Manufacturing Capabilities  
Ífígo Flores, Aalto University
- 13:50** Robust Design of active Systems - an approach to consider disturbances within the selection of sensors  
Tilmann Freund, TU Darmstadt
- 14:10** Robust Design Process for the Dimensional and Geometrical Features on Cold Formed Components  
Julian D. Booker, Bristol
- 14:30** Closing Session
- 15:00** Farewell drinks reception
- 16:00** Bus departs from Conference
- 20:00** Food & Drinks at Christiana, (meet at hotel reception at 19:30) (Not included in conference fee)

## Poster Session

- A Robust Design Methodology Process  
Ida Gremyr, Chalmers University
- Methodology to identify an ideal point of time for performing a FMEA during the product development process  
Jan Würtenberger, TU Darmstadt
- Sensitivity Analysis of Tolerances which Restrict Multiple Similar Geometry Elements  
Philipp Ziegler, FAU
- Systematic Method for Axiomatically Robustness-Testing (SMART)  
Stefan Kemmler, University of Stuttgart
- Categorisation RDMs  
Moritz Göhler, DTU

## Practicalities

### To and from the conference

A shuttle bus will **depart from conference hotel at 08:00**.

The bus will leave at **17:00 on 14th August** and **16:00 on 15th August**, returning to the conference hotel.

For live streaming of the conference please visit:  
[www.ustream.tv/channel/dtu-broadcast](http://www.ustream.tv/channel/dtu-broadcast)

### Taxi Service

To order a cab in advance or right now call **+45 3535 3535**.

## Conference Hotel and Dinner



**Nørrebro Bryghus**  
Ryesgade 3  
2200 København N

**Ibsens hotel**  
Vendersgade 23  
1363 Copenhagen K  
Denmark