

## ACMIT

### Austrian Center for Medical Innovation and Technology

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: K1-Centres

COMET subproject, duration and type of project:

Optimisation of surgical procedures, 04/2014 – 03/2017, strategic

## Design of Medical Devices Europe 2015

The third edition of the scientific conference on “Design of Medical Devices Europe” has been organized by ACMIT and took place on Sept. 8-9, 2015. An international community of scientists, engineers and physicians met in Wiener Neustadt in order to present and discuss key developments in the design of medical devices. General slogan for the 2015 conference was “Rapid Prototyping for the efficient design and validation of medical devices”. In three invited talks, two invited workshops and five technical sessions the international audience received a very complete overview of different aspects of medical device development which also fostered fruitful discussion and networking.



### Rapid Prototyping for the efficient design and validation of medical devices

Since 2013, the DMD Europe conference series is organized in close collaboration with the successful Design of Medical Devices Conference series (Minneapolis, USA). The annual event is an international platform for scientists, engineers and physicians to present and discuss key developments in the design of medical devices. This year's conference in the series, DMD Europe 2015, has been organized by ACMIT and took place in Wiener Neustadt, Austria.

Motivated by the fact that efficient application development could significantly

benefit from setting up the particular project activities on existing knowledge and building blocks, the general headline for the DMD Europe 2015 conference was “Rapid Prototyping for the efficient design and validation of medical devices”. The scientific programme put a strong focus on methods and tools for an efficient design process, with contributions from the following (and related) topical areas:

- Additive manufacturing for efficient design
- Rapid prototyping of medical software applications with open-source tools
- Middle-ware concepts for the design of medical devices

- Modular medical mechatronic systems/robotics
- Simulation and training for design and validation of medical devices



### DMD 2015 conference – Follow Up

The technical programme of the conference included two special workshops on design related topics, three key note presentations in the main topical areas of the conferences, and five open technical sessions with 19 presentations. Following the tradition of the two previous DMD Europe conferences, particular focus for the technical sessions was on interactivity, i.e. each presentation also had some room for interactive, hands-on demonstration of the achieved research results.

Two workshops, organized by ACMIT scientific partner Delft University of Technology, were dealing with particular aspects of design. In the workshop ‘Design by Dissection’, the organizers introduced a new design approach demonstrating that consideration of all influencing factors for medical device development, such as legislation, sterilisation, workflow, and implementation – together with the required functionality – will not limit true innovation but can be seen as very valuable additional design input. The second workshop, ‘Design by Reflection’ introduced a new creative design method called ACRREx, which is a systematic method to explore and expand the solution space in the search for new solution classes or entirely new solution fields

towards truly innovative answers to a design challenge. After description of the method as such, the organizers showed a number of examples in which clever biological design approaches found in nature were combined with ACRREx to find smart solutions in the fields of steerable surgical instruments and self-propelled intestine inspection devices.

In the three keynote lectures, international experts were describing both the state of the art as well as future trends for three key elements for rapid application development. Michiel de Bruijcker (NL) demonstrated the immense potential, but also the limitations, of Ceramic Additive Manufacturing process for medical device components. In his keynote lecture, Cyrill von Tiesenhausen (DE) gave an overview how to leverage industrial robotics know-how for medical devices. In the third keynote, Mikael Brudfors (ES) gave an impressive hands-on demonstration regarding the options of open source software SlicerIGT/PLUS for rapid interventional application prototyping.

DMD Europe 2015 was attended by 41 participants from 14 different countries. Beside of the workshops and lectures described above, the structure of the conference programme was offering time and room for networking. With all these activities together, DMD Europe 2015 was a great opportunity for exchange of new ideas and fostering collaborative research in the area of medical devices.

#### Contact and information

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#### Further information on COMET – Competence Centers for Excellent Technologies:

[www.ffg.at/comet](http://www.ffg.at/comet)

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