IFTOfMM Technical Committee
Sustainable Energy Systems
2011-2012

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TOKYO, November 2012
The activity of the TC

Officially TC launching: June 2011.

Activities:
1. The first TC meeting: November 11, 2011, Brasov Romania

Outcome: defining the specifics in the TC activity
- „the TC is opened for activities on Sustainable Energy Systems applied in Renewable Energy Conversion (solar, wind, hydro, biomass), particularly on energy conversion systems (with output in heat and power);
- the TC will focus on implementing the complex concept of “sustainability” of the mechanical systems and mechanisms, by defining energy efficiency, clean energy (comparing with other energy type);
- horizontal topics (business and society) will also be approached.

The identity of the TC: mechanisms and machine sciences, in sustainable energy systems: ecology, society, economy.
The activity of the TC

Activities:
2. The Conference for Sustainable Energy, CSE 2011, with specific focus on sustainable energy systems, including applications in photovoltaics, solar-thermal systems, micro-hydro and small wind turbines; novel trends on built integrated sustainable energy systems were outlined during the conference and gave a new insight on the TC perspectives.

3. Participation in the General Assembly of the European Sustainable Energy Innovation Alliance, ESEIA, where the TC was presented and further cooperation was designed. ESEIA joins academic and industry members from 14 European countries (AT, BE, DE, IR, IT, LV, NL, NW, PL, PT, RO, SV, SK, UK). The TC Chairman was re-elected also Vice-president of ESEIA.

4. Strengthening the links with the economic environment by involving TC members in cluster-type structures;
The activity of the TC

Activities:

5. Launching the RTD Institute: High tech products for sustainable development, on the 1st of March 2012, in the Transilvania University of Brasov, Romania, coordinated by the TC Chairman, Prof. Ion Visa.

The RTD institute is dedicated to interdisciplinary research on Sustainable Energy and the TC is well promoted within this institute. The Romanian Branch of IFToMM, ARoTMM has a strong nucleus in the Institute.
Meetings and visits

**TC Meeting, November 11, 2011, Brasov Romania**,  
TC members: Prof. Ion Visa, TC Chairman, Prof. Shuo Hung Chang, Taiwan, Prof. Noel Leon Rovira, Mexico, Prof. Vistrian Mateis, Romania, Prof. Arkadiusz Mezyk, Poland  
Invited guests: Prof. Istvan Farkas, Hungary, Prof. Bernhard Pelikan, Austria, Prof. Codruta Jaliu, Romania, Prof. Anca Duta, Romania.

**The main conclusions are:**  
- Research is necessary, in defining the fundamentals, followed by steps for technology transfer, including the cost-benefit analysis;  
- Joint international events will be used to promote TC;  
- Transdisciplinary approaches are welcome and necessary;  
- An yearly information should be sent by each TC member to the Chairman.

**Joint cooperation between Transilvania University and the Technical University of Moldavia** (Prof. Ion Visa and Prof. Dulgheru, TC members) on novel mechanisms for enhancing the conversion efficiency in small hydros and small wind turbines.
Research joint collaborations and exchanges

- **EST IN URBA R&D project** was granted (750,000 EUR, RO financing): the project proposes a complex, highly interdisciplinary approach for extending the implementation of solar-thermal systems in urban areas. The project gradually develops novel solutions for: flat-plate solar thermal collectors (FPSTC) – solar thermal arrays (STA) – solar thermal systems (STS) implemented in buildings (facades, balconies, roofs), architectural objects (fountains, decorative walls), parks, focusing on locations with cold/temperate climate.

- **Romanian-Canadian RTD joint** project was developed for the conceptual design of tracking solutions for PV implemented in the Toronto (Canada) area: cooperation Transilvania University of Brasov – Centennial College, Toronto.
**Conference events**

**Conference for Sustainable Energy, CSE 2011** (10-12, November 2011), Brasov, Romania.

The Conference was included in the IFToMM calendar

Conference Proceedings: internationally peer reviewed papers were published in Environmental Engineering and Management Journal (Indexed in ISI Thompson).

**Teaching activities**

**The Seminar for Mechanisms**, (3-5 May 2012, organized by the Romanian branch of IFToMM – ARoTMM)

This edition was dedicated to harmonizing the use of software in academic teaching and in training the students through and for research.

**The International Summer School on Renewable Energy Systems and Sustainability**, (07 – 21 July 2012, organized by the International Association of Engineering Students, BEST and Transilvania University of Brasov) opened to 23 students from 17 countries
Future planned activities

- Attending the IFToMM conference: The Assian MMS Conference, Tokyo, November 2012.

- The next TC meeting is Tokyo, November 2012.

- Organizing the INTERNATIONAL SYMPOSIUM ON SCIENCE OF MECHANISMS AND MACHINES SYROM (November 2013)

- The ESEIA Summer School on Sustainability will be organised in July 2013, in Brasov Romania.

- Finalising the TC website

- Strengthening the TC links beyond Europe