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International Conference on
Resource Efficiency in Interorganizational Networks

Call for Papers

On 13th and 14th November 2013, the Georg-August-Universität Göttingen (Germany) will host the first International Conference on Resource Efficiency in Interorganizational Networks (ResEff).

Renewable raw materials are becoming increasingly important as an alternative resource base in industrial networks. Consequently, research for methods improving the efficient use of renewable resources in production processes with by-products is crucial. The aim is cascade utilization, thus the multiple utilization of a raw material before its conversion into energy.

The ResEff brings together interdisciplinary researchers developing strategies and solution concepts for efficient resource utilization. It is therefore a forum for scientific exchange both between experts as well as interdisciplinary groups. The following facets of the challenging topic of resource efficiency in interorganizational networks are covered:

- Track A: Materials and Technologies
  - Characterization of Fibres and Particles
  - Supply Chain of Renewable Resources
  - Usage of Cell Wall Components, esp. Hemicelluloses
- Track B: Planning of Production and Value-Added Networks for Renewable Resources
  - IS and IM in Value-Generating Networks for Renewable Resources
  - Mathematical Optimization in the Presence of Uncertainties
  - Modeling of Production and Logistic Systems
- Track C: Governance, Coordination and Sales
  - Consumer Behavior towards Eco-Friendly Products
  - Distribution of Intermediate and End Products from Renewable Resources

The following invited speakers will contribute to the ResEff 2013:

Prof. Martin Faulstich
CUTEC Institute of Environmental Technology, Chair of the German Advisory Council on the Environment

Prof. Barry Goodell
Sustainable Biomaterials, Virgina Polytechnic Inst. and State University

Prof. Adisa Azapagic
Sustainable Chemical Engineering, University of Manchester

The conference will include parallel sessions for presentation of papers in the fields of agricultural and forestry science, mathematical optimization, operations research, marketing, business informatics, production and logistics. Each track contains different sessions for expert talks. The interdisciplinary exchange is fostered through special talks and meetings, where all groups come together.

More information about the organizing DFG Research Training Group 1703 “Resource Efficiency in Interorganizational Networks” is available on the website www.resource-efficiency.uni-goettingen.de

The deadline for submission of abstracts (approximately two pages) is 12 June May 2013. Guidelines for submission can be found on the conference website. Submissions are subjected to an independent and professional *blind peer review* and will be judged on originality, significance, interest, clarity, relevance, correctness and presentation.

Important Dates

12 June 2013	Deadline for Abstracts
20 June 2013	Notification of Acceptance
20 June 2013	Begin of Registration
15 Sept 2013	Camera Ready Deadline
13-14 Nov 2013	ResEff

Contact
reseff2013@uni-goettingen.de

Website
http://reseff2013.uni-goettingen.de

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Ress Eff GRK 1703

Session Description (AT1):
Characterization of Fibres and Particles

To start a cascade utilization of raw materials and by-products one has to gain knowledge of their properties and suitability for specific applications. Therefore this session focuses on methods for the characterization of (natural) fibres and particles like wood particles, annual plant fibres, and regenerated cellulose fibres. Topics of interest in this section comprise the morphological characterization of fibre/particle size and shape and of surface characteristics, the chemical composition, testing methods for the determination of mechanical properties, and the reinforcement potential in composite materials. Furthermore, we are interested in contributions to the topic of the influence of extraction methods, fibre processing, composite production and recycling techniques on the fibre/particle characteristics. Interesting topics include, but are not limited to:

- Characterization of natural fibres and particles
  - Testing methods
  - Morphology: size and shape, surface characteristics
  - Mechanical properties and chemical composition
  - Reinforcement potential in composites
- Influence of modification and processing on fibre characteristics
  - Extraction methods
  - Thermoplastic composite production: injection moulding, extrusion
  - Recycling

Session Description (AT2):
Supply Chain of Renewable Resources

The supply of renewable raw materials for the industrial use is playing an increasingly important role. There is a high demand for biomass (especially wood) leading to a competition between energy and material use. Plant biomass from the agricultural sector is currently used. In contrast, forestry produced biomass mainly goes into the material use. Yields and material flows from the forestry and agricultural sector differ fundamentally due to the limited availability and the annually fluctuating. There are various approaches to increase the proportion of available biomass, such as short rotation coppice, the cascade use of existing raw materials or usage of natural fibers. Therefore the situation requires describing and evaluating the supply chains of renewable resources and finds the most efficient usage options. Interesting topics include, but are not limited to:

- Short rotation coppice
- Planting Material - Breeding, Resistance, Growth
- Harvesting Techniques
- Woodchips - provision and logistic
- Fiber plants
- Crops for the industrial use
- Byproducts of the agricultural industry
- Provision and supply of material
- Cascade use of raw materials

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Session Description (AT3):

Usage of Cell Wall Components, esp. Hemicelluloses

A possible way to improve resource efficiency of lignocellulosics is the cascade utilisation by extracting cell wall components and to use them as a by-product instead of leaving them in the main product (e.g. particle boards). This session focuses on the usage of cell wall components, especially hemicelluloses. There is much research done in the field of hemicellulose extraction. Topics of interest in this session comprise the characterisation of fields in which these hemicelluloses can be used, the relevance of properties for different options for use, and the influence of the chosen extraction method on these properties. Further interesting topics include, but are not limited to:

- Extraction of hemicelluloses
  - Hot water extraction
  - Microwave extraction
  - Other extraction methods
- Usage of hemicelluloses
  - in the paper industry
  - in the food industry
  - Pharmaceutical
  - as hydrogels
  - others

Session Description (BT1):

IS and IM in Value-Generating Networks for Renewable Resources

The modern IT and the innovative information systems (IS) in the value-generating networks for renewable resources (from forestry and agriculture up to the consumers) are capable of supporting the business processes and of contributing to the overcoming of the challenges such as reduction of uncertainty in quantity and quality of renewable resources, optimization of material flows and improvement of resource efficiency etc. The science and industry are working on how IS and information management (IM) can contribute to meet the requirements in this sector. We convene papers, which explain potentials of IS and IM in the context of renewable resources from different perspectives such as acquisition and exchange of data within one and between companies, inter-organizational IS, governance of network IT etc. Topics of interest include, but are not limited to:

- Tracking & Tracing-Systems
- Auto-ID-Technologies, data- and technology standards
- Computer aided production planning and control
- Precision agriculture and forestry
- Inter-organizational IS (e. g. for supply chain management, management of material flows or life cycle assessment of products)
- Management of inter-organizational IS and management techniques to steer resource efficiency
- IT governance practices

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Session Description (BT2):

Mathematical Optimization in the Presence of Uncertainties

Decisions in the context of renewable resources, i.e. in forestry and agriculture, often have to be made without the knowledge of all relevant data. In order to model and hedge against these uncertainties in mathematical optimization problems, the fields of stochastic, robust and online optimization have evolved over the last years. We invite contributions to the field of mathematical optimization with applications to resource efficiency, in particular concepts, theoretical results and solution approaches for optimization in the presence of uncertainty.

Topics of interest include but are not limited to applications of operations research in the context of

- renewable resources and
- resource constraints,

in particular when dealing with uncertain future knowledge. Techniques include

- robust optimization,
- online optimization,
- stochastic optimization,
- multi-objective optimization.

Session Description (BT3):

Modeling of Production and Logistic Systems

Since renewable materials are used both in the manufacturing and in the process industry, the production of renewable resources has been increased significantly in recent years. Adapting the planning and design of production and logistics systems to the characteristics of renewable materials is a difficult and complex task. Variations in the quantity and quality of the materials lead to uncertainties and imprecision, which have to be considered in the modeling and optimization. Additionally, varying preferences of the participating companies within the supply chain network require a multi-criteria analysis to support decision-making processes.

Within this context the track is dedicated to research on theoretical analysis and applications concerning production and logistics systems with renewable resources. The track is a forum for presenting results of the international research and development work dealing with multi-criteria decision making, the modeling and optimization of logistic networks as well as the handling of uncertainties in production induced by the utilization of renewable resources.

Topics of interest include, but are not limited to:

- Modeling logistics network for renewable resources
- Risk potential in biomass supply chains
- Biomass logistics under uncertainty
- Multi-criteria decision making

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Session Description (CT1):
Consumer Behavior towards Eco-Friendly Products

In order to realize cascade utilization, marketing research should address the use of renewable resources by incorporating the overall marketing mix. Thereby consumer behavior becomes particularly important, since purchase behavior is an essential factor determining the success of eco-friendly approaches. Central issues are related to consumers' specific requirements regarding eco-friendly products. The implementation of cascade utilization also premises the existence of awareness on the part of consumers. A reuse of materials and/or products previous to an energetic utilization requires that consumers support recycling methods, favor products made from recycled materials and are sensitized for the problems resulting from direct energetic utilizations. We invite submissions from consumer research and contributions relating to the overall marketing mix, as long as they help to understand eco-friendly consumer behavior. Topics of interest include but are not limited to:

- Determinants of eco-friendly consumer behavior
- Consumer attitude towards recycled products and/or certification systems
- Willingness to pay a price premium for eco-friendly products
- Market segments for and positioning of products made from renewable resources
- Brand management and renewable resources
- Promising advertising strategies for eco-friendly products
- Contributions from public relations to eco-friendly purchase behavior

Session Description (CT2):
Distribution of Intermediate and End Products from Renewable Resources

In order to realize successful cascade utilization, an efficient distribution system of the intermediate and end products beginning from the raw material supplier to the end consumer is needed. Central questions are what specific features should be considered in the distribution of products from renewable resources and how do they affect the design of an efficient distribution system. Specifics in the distribution result from fluctuations in quality, availability, and – owing to a possible scarcity – the prices of products from renewable resources. Furthermore, to implement successful cascade utilization, it is necessary that all involved parties coordinate their activities. For this purpose, different coordination mechanisms are available. One issue researched is whether market-based, hybrid or hierarchical coordination mechanisms are advantageous for the distribution of products from renewable resources. Topics of interest include but are not limited to:

- Special features in the distribution of products from renewable resources
- Efficient distribution systems for products from renewable resources
- Specific risks associated with distributing products from renewable resources
- Channel conflicts and incentive mechanisms
- Efficiency of different coordination mechanisms for the distribution of renewable resources
- Factors influencing the advantageousness of different coordination mechanisms
- Relationship management in the B2B domain supporting resource efficiency

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