

Save the Date

What: 4th Interdisciplinary Winter School
Graduate Center
Munich School of Engineering

When: February 16 to 20, 2020

Where: Hotel Alpenblick
Ohlstadt, Germany

Costs: 500,00 € p.p. (including excursion, board and lodging)

Important Dates

Application deadline: December 05, 2019
Please send your application including your CV
to graduierzentrum@mse.tum.de

Notification date: December 16, 2019

Publication of program: January 15, 2020



Scientific exchange, source: TUM/A. Eckert

Directions to Ohlstadt

Hotel Alpenblick
Heimgartenstraße 8 in 82441 Ohlstadt
(between Murnau and Garmisch-Partenkirchen)

<https://www.hotel-alpenblick-ohlstadt.de>

ICE: several ICEs arrive / stop at Murnau station.
Train: train station directly in Ohlstadt. Trains arrive every hour to and from Munich, Garmisch-Partenkirchen and Mittenwald. The hotel offers free shuttle service to and from the station.

Technische Universität München
Graduate Center Munich School of Engineering

Lichtenbergstr. 4a
85748 Garching
www.mse.tum.de

Energy and Food

4th Interdisciplinary Winter School

Graduate Center
Munich School of Engineering

February 16 to 20, 2020

Hotel Alpenblick in Ohlstadt, Bavaria



Mega City Farming source: HSWT/ S. Wittmann

Energy and Food

4th Interdisciplinary Winter School Graduate Center Munich School of Engineering

This Winter School builds on the previous one „Food and Energy“ in 2019. While the first Winter School focused on plants' needs, the analysis of the supply chain and the consumption patterns as well as on food waste, the emphasis is now on ecological and energy related questions.

Cross-linking of the international lecturers' expertise in energy systems, life-cycle-analysis, horticulture, soil and water management enables an holistic discussion on food production. Innovative approaches like vertical farming are compared with conventional farming like green house or open field production. Vertical farming is considered to be a key-technology for dense mega-cities to harvest food all year-around in high quality.

Topics

- Connected challenges in times of urbanization, population rise and climate change
- Food-Energy-Water-Nexus
- Water and soil quality
- Daylight-free food production
- Key indicators for sustainable vertical farming
- Life-Cycle-Analysis of various food production systems



Food Supply Chain, source: HSWT/ H. Mempel

Goals

- Understanding the relation between food, energy and water
- Assessing sustainability aspects in food production, processing and the whole supply chain
- Recognizing the need of a holistic approach in evaluating food systems
- Discovering cutting-edge indoor cultivation related to energy demand and environmental impact
- Networking and scientific interdisciplinary exchange
- Encouraging discussions for possible future collaborations

Methods

- Topic lectures
- Tutorials with presentation of results
- Interdisciplinary discussions
- Poster presentations by PhD students
- Tools to describe the implied energy in the food sector
- Fireside chats
- White paper meetings
- Preparation of a low-energy meal



Challenge Food Security, source: TUM/ M. Kramer

Lecturer and Topics

Prof. Jasper den Besten

HAS University of Applied Sciences, Netherlands:
[Plants in High-Tech Surroundings](#)

Prof. Dr. Martin Brandt

Technical University of Munich, Germany:
[LED Lighting](#)

Prof. Dr. Amit Gross

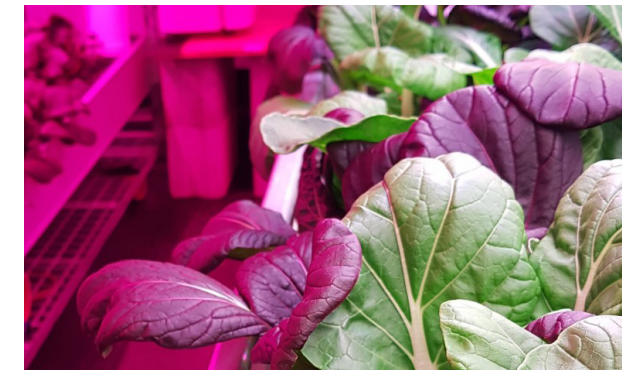
Ben-Gurion University of the Negev, Israel:
[Water, Soil and the Environment](#)

Prof. Dr. Thomas Hamacher

Technical University of Munich, Germany:
[Food and Energy](#)

Dr. Serenella Sala

JRC-European Commission, Spain:
[Life Cycle Assessment](#)



Searching for the Ideal Growing Formula, source: TUM/ MSE