Prof. Uwe Schmidt



Faculty of Life Sciences

Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences

Department of Crop and Animal Sciences, Biosystems Engineering

Expertise

Biosystems engineering works at the interface between engineering and biological production processes. Prof. Schmidt and his team develop engineering solutions for a sustainable agricultural production of crops and other environmental friendly technologies. Prof. Schmidt's research thus leads to innovative plant farming methods in greenhouses, outdoors and other intensive crop farming systems. Alternative energy supply systems (low energy greenhouses) and closed material cycles for intensive crop farming (water hygiene, sensor systems and algorithms for fully automated nutrient solution supply in closed cycles) are Prof. Schmidt's research area. His main activity herein is the development of sensors for gas analyses, climate measurement technology and that of software supporting decision making in automation systems. Moreover, the team also provides energetic assessments in complete production systems and parts thereof as well as process analyses.

Scientific Services

- Experimental greenhouses with energy and material flow analytics, CO2 enrichment, artificial lights and fog systems
- Plant monitors for continuous measurement of photosynthesis, transpiration, tissue temperature, stomatal conductance, climate measurement, gas analyses (Co2, ethylene), soil moisture sensors
- Freely programmable automation system for climate and process control in greenhouses

Testimonials

- G.F. Schreinzer Positronik, Steinbeis GmbH & Co. KG: Development of an automation system for greenhouses based on measurement details of plants (Phytocontrol)
- Steinbeis GmbH & Co. KG: National collaborative research project „The Low Energy Greenhouse" („Zukunftsinitiative Niederigenergiegewächshaus", ZINEG)
- Pronova Analysentechnik GmbH & Co. KG: Development of ionselective sensors for continuous recording of ion proportion in circulating nutrient solution systems; Development of measuring device to analyse phytometric reactions in plants
- newtec Umwelttechnik GmbH: Development of re-circulating irrigation system with reduced phytosanitary risk in greenhouses

Topics / Trends

Climate / Climate Change
Communication(s) Systems
Land Use
Human-Technology-Interaction
Sustainability & Ressource Efficiency
Food
Robotics & Artificial Intelligence
Software Development
Urbanisation & Mega Cities
Water
Value Chains

Industries

Agriculture & Food
Energy, Utilities & Raw Materials
Information & Communication Technology

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