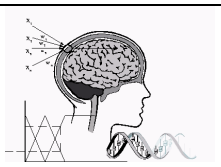
International

Innovation in Knowledge Based and Intelligent Engineering Systems



INVITED SESSION SUMMARY

Title of Session:
Sustainable industrial metabolism and implementation technology in green manufacturing

Name, Title and Affiliation of Chair:

Chair NAME (given name first, family name second): Hua Zhang
TITLE (Professor, Dr, Mrs, Ms, Mr): Professor
AFFILIATION: Academy of Green Manufacturing Engineering, Wuhan University of Science and Technology

Co-Chair NAME (given name first, family name second): Gang Zhao
TITLE (Professor, Dr, Mrs, Ms, Mr): Professor
AFFILIATION: Hubei Key Laboratory of Mechanical Transmission and Manufacturing Engineering, Wuhan University of Science and Technology

Details of Session (including aim and scope):

Intensive study on fundamental laws of industrial metabolism will facilitate the sustainable progress for manufacturing technologies. Through deconstructing and analysing the process of industrial metabolism, the mass and energy behaviours in an industrial or manufacturing system are modelled and simulated in order to find sustainable theories, methodologies, tool for every operation and equipment. Normally, amounts of mass and energy data needs to be monitored and processed for establishing the model of industrial metabolism. Therefore, big data and AI technologies are necessarily used to indicate and control the mass and energy behaviours more accurately, which offers the most feasible and intelligent approach to achieving the systemic energy conservation and emission reduction. Furthermore, for implementing these environment-oriented intelligent technologies, it is necessary to develop the corresponding novel processes, efficient machines, intelligent technologies and environmental protective equipment for green manufacturing.

Since environment-oriented intelligent technologies and smart green equipment play critical roles in implementing the sustainable industrial metabolism embedded in green manufacturing systems, our session aims at driving a focused discussion on the sustainable industrial metabolism in green manufacturing and relevant implementation technologies. The main purpose is to discover the scientific fundamentals of green manufacturing and accelerate its technical development.

In this session, the expected interests include but not limited to the following topics:
1. Industrial metabolism and industrial ecology theory in typical industries
2. Big data processing for green process planning and production scheduling
3. AI and smart manufacturing technologies for sustainable objectives
4. Green equipment including efficient machines, green products, environment-oriented smart robots and environmental protective automation equipment
5. Systemic energy conservation and emission reduction (ECER) technologies

Main Contributing Researchers / Research Centres (tentative, if known at this stage):
Wuhan University of Science and Technology

Website URL of Call for Papers (if any):

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