



## INVITED SESSION SUMMARY

**Title of Session:**

Green manufacturing with an industrial metabolism and smart access perspective

**Name, Title and Affiliation of Chair:**

**Chair NAME** (given name first, family name second): Hua Zhang

**TITLE** (Professor, Dr, Mrs, Ms, Mr): Professor

**AFFILIATION:** Green Manufacturing Engineering Institute, 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):**

Industrial metabolism is concerned with mass and energy flow in an industrial system and explains how it works during operations of the processes and equipment in the plant. A further understanding on industrial metabolism and its control is essential for a more efficient industrial system. Intensive researches on fundamental laws of industrial metabolism will facilitate the development of green manufacturing technologies for discrete manufacturing as well as continuous production since the basic principles embedded in both categories of industry are the same. Systemic energy conservation, emission reduction and consumption suppression depend on the integration of individual green manufacturing technologies which consist of all theories, methodologies, processes, tools and innovations covering the full life cycle of products. Among these, unmanned automation and environment-oriented intelligence play a critical role in the systemic engineering of green manufacturing. Smart manufacturing offers the most viable and powerful approach to achieving green manufacturing targets. Novel and sustained efforts on both theoretical fundamentals and industrial implementation will broaden our horizon on green manufacturing.

This invited session aims at driving a focused discussion on Industrial metabolism, green and smart manufacturing. The main purpose is to explore 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. Green process planning and production scheduling
2. Green processing database and big data
3. Green manufacturing equipment and green plants
4. Remanufacturing design and technologies
5. Remanufacturing processes and equipment
6. Industrial metabolism in manufacturing and steel industry
7. Industrial ecology for manufacturing and steel industry
8. Smart manufacturing technologies for the green objectives and sustainability
9. Systemic energy conservation and emission reduction (ECER) technologies
10. Social concerns on circular economy and sustainable development

**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):**

<http://www.wust.edu.cn/lsczz/>

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