INTERNATIONAL

INVITED SESSION SUMMARY

Title of Session:

Sustainable Energy Technologies: Innovation in Design and Manufacture

Name, Title and Affiliation of Chair:

Dr Elliot Woolley, Loughborough University and Professor Neil Beattie, Northumbria University

Details of Session (including aim and scope):

Renewable energy technologies play a crucial role in decarbonizing human activities, but challenges exist. Despite efforts to improve efficiency and installations, significant energy is often required for production, resulting in extended energy payback periods. Additionally, the use of composite or deeply embedded materials poses challenges for recycling and recovery. In short, there is a critical need to ensure that these technologies are designed and manufactured more sustainably. This session will specifically explore how these various technologies can themselves be produced and integrated to better transition to a low carbon future.

Key themes of the session may include:

1. **Innovative Materials and Processes:**
   - Focus on sustainable materials and manufacturing processes in the development of renewable energy technologies.
2. **Circular Economy in Renewable Tech:**
   - Explore how circular economy principles can be applied to the life cycle of renewable energy technologies, from design and manufacturing to end-of-life considerations.
3. **Design for Integration of Renewable Systems:**
   - Discuss the seamless integration of renewable energy technologies into existing infrastructures and urban planning.
4. **Smart Manufacturing for Sustainability:**
   - Discuss how smart manufacturing technologies contribute to sustainable practices in the production of renewable energy technologies.
5. **Community Engagement and Education:**
   - Explore strategies for involving communities in the sustainable design and manufacture of renewable energy technologies and the importance of education in this field.
6. **Life Cycle Assessment (LCA):**
   - Discuss methodologies and findings of life cycle assessments for various renewable energy technologies, evaluating environmental impacts from cradle to grave.
7. **Emerging Technologies and Trends:**
   - Explore cutting-edge technologies and trends that are shaping the future of sustainable design and manufacture in the renewable energy sector.

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Website URL of Call for Papers (if any):

Email & Contact Details:

Dr Elliot Woolley

Wolfson School of Mechanical, Electrical and Manufacturing Engineering
Loughborough University
Leicestershire
LE11 3TU
UK

E: e.b.woolley@lboro.ac.uk
T: +44 (0)1509 225410
www.lboro.ac.uk