NAFEMS Technical Working Group Overview

Manufacturing Process Simulation (MANWG)
2019

Manufacturing Process Simulation (MANWG)

- The NAFEMS Manufacturing Process Simulation Working Group (MANWG) was launched in February 2016 with the following mission statement:

  'to promote the development and use of virtual manufacturing tools within the product design and manufacturing cycle to improve outcomes in industrial manufacturing processes'.

- The Manufacturing Process Simulation Working Group has three Focus Groups, concentrating on **Composites**, **Metallic Additive Manufacturing** and **Metals**.

- Monthly online meetings via WebEx

- **Chair** – Peter Giddings, National Composites Centre
- **Vice Chair** – Anas Yaghi, Manufacturing Technology Centre
- **MANWG Composites Focus Group Chair** – Amit Visrolia, National Composites Centre
- **MANWG Metallic Additive Manufacturing Focus Group Chair** – Sjoerd Van der Veen, Airbus
- **MANWG Metals Focus Group Chair** – Trevor Dutton, Dutton Simulation

- The group includes representatives of The Aerospace Corporation, Airbus, ANSYS, Birmingham University, Brunel University, Centre for Process Innovation, Convergent, Dutton Simulation, Endress+Hauser, Enginsoft, ESI, Herbertus, HOERBIGER Corporation of America, Intrinsys, University of Leuven, Manufacturing Technology Centre, National Composites Centre, Purdue University, Queen's University Belfast, Rolls Royce, Ryobi Die Casting, Saudi Aramco Oil Company, Sheffield University, Southwest Research Institute, Swerea KIMAB, Technical University of Denmark, Tecnalia, Transvalor S.A., TWI Ltd, Universitat Politecnica de Catalunya - CIMNE, University of Strathclyde/AFRC, Warwick University / WMG, Wilde Analysis

- Information about the Manufacturing Process Simulation Working Group can be found on the NAFEMS website at **www.nafems.org/community/working-groups/manufacturing-process-simulation**

- To enquire about joining this working group complete the online form at **www.nafems.org/community/working-groups/manufacturing-process-simulation/get_involved**

Manufacturing Process Simulation (MANWG)

The MANWG aims to be a focal point for independent and reliable information on simulation capabilities and requirements, specifically by pursuing its goals of:

- making virtual manufacturing tools more **reliable, accurate and efficient**
- making virtual manufacturing tools **wide-spread and effective** in design and execution of manufacturing processes
- **increasing awareness** of virtual manufacturing and its value in real-world manufacturing
- **becoming a hub** for modellers to be well informed and interconnected concerning simulation matters
- sharing best practice
- **facilitating innovation** through the promotion and support of virtual manufacturing tools within academia, policy makers and throughout the manufacturing community
- creating guides, bench marks and 'how to' guides
- collaborating with others
- attending and promoting events

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MANWG Composites Focus Group:

- The MANWG Composites Focus Group was set up in 2018 and aims to:
  - To promote best practice simulation methods for all manner of composites manufacturing processes by clarifying the potential benefits, addressing the technical challenges and providing a source of information.
  - To identify the areas that require more investigation to allow greater application of these methods to industrial composites users.

- Further details of the group's aims and activities can be found at **https://www.nafems.org/community/working-groups/manufacturing-process-simulation/composites_manwg_focus_group/.**

MANWG Metallic Additive Manufacturing Focus Group:

- The MANWG Metallic Additive Manufacturing Focus Group was set up in early 2017 and aims to:
  - compile a list of defects in order to prioritise the work of the group, including identification of which defects are most critical.

- Further details of the group's aims and activities can be found at **https://www.nafems.org/community/working-groups/manufacturing-process-simulation/metallic_additive_manufacturing_focus_group/.**

MANWG Metals Focus Group:

- The MANWG Metals Focus Group was set up in early 2018 and aims to:
  - promote best practice simulation methods for all manner of metal manufacturing processes, by clarifying the potential benefits, addressing the technical challenges and providing a source of information.
  - identify the areas that require more investigation to allow greater application of these methods in industry.

- Further details of the group's aims and activities can be found at **https://www.nafems.org/community/working-groups/manufacturing-process-simulation/metals_manwg_focus_group/.**

Chair Bio

Dr Peter Giddings CEng MiMechE:

Dr Giddings leads the development and implementation of novel manufacturing capabilities and their associated value streams in his role as Chief Engineer for the iCAP programme at the National Composites Centre (NCC) in Bristol. He brings academic research background from the University of Bath and industrial composite R&D experience at United Technologies Aerospace Systems to guide the creation and industrialisation of innovative composite manufacturing processes.

His primary research focus is in combined use of predictive simulation and data-driven decision making to accelerate product and process development within concurrent engineering environments.