

Conference and Forum 2024: 19th – 23rd May 2024



[Conference Programme](#) (please read for the full list of speakers)

Event Overview

- The Conference & Forum 2024 took place from May 19th to May 23rd, at Wotton House in Dorking, Surrey/
- Attendance across the sessions was high with the average attendance per session ranging from 90 to 100

participants.

- The event launched the Network's status as a 'network plus'; to support connections between the Network membership; to discuss and consider the major challenges for metamaterials research; and to prepare the Network membership for the Pump Prime Fund (opening in October 2024).
- The Conference & Forum featured a review of the Special Interest Group roadmaps which will be published in the coming months, and focused sessions on the underpinning metamaterials science and the four Challenge Areas of the Network bringing together discussions and new research on metamaterials in space and aviation, sustainability and health, and on the manufacturing of metamaterials.
- The event also included a lively 'Just a Minute' Poster session featuring research and metamaterials research groups both across the UK and internationally.
- Delegate feedback has been highly positive with 84% of respondents agreeing that the conference achieved its objectives and 92% of attendees found that they had made new connections across the event.

Health

The session was led by three invited speakers who were engaging and well received by the delegates. The key notes from the discussion and speakers were:

1. The Devices for health need to be tested under conditions that are representative of how they will be used. This will likely require collaboration between metamaterials researchers, and those developing / applying representative tests.
2. Carefully select health devices where metamaterials can bring improvements. For example, hip replacements are often cited as candidate applications for metamaterials, but current solutions appear to be adequate, as they tend to outlast the (typically elderly) patient.
3. Engage with clinicians. This can be done by attending conferences and meetings.

Sustainability

The sustainability session, divided into five talks, a panel discussion and a roundtable session, delved into the application of metamaterials to sustainability. Topics included renewable energy, bio-based metamaterials, environmental monitoring, and carbon footprint data.

The Sustainability Challenge will build on the conference's successes by facilitating bid writing discussions among project groups and exploring bio-based metamaterials and sustainability definitions for metamaterials.

Space & Aviation

Space

The session was comprised on presentations on three academic led projects, resulting from the sandpit event in January, followed by a roundtable session which discussed and developed the project areas further. The projects covered metamaterials applications for:

- communication
- space debris protection
- and reliable operation

Aviation

The session focused on introducing the Aviation section of the challenge to the Network members. An extended panel discussion including representatives from the wider aerospace, defence, SME metamaterial developer and a metamaterial academic provided a general overview of the topic. The session provided useful data and feedback on potential contributors, applications and opportunities which will shape the future Aviation launch and the direction for the Challenge Area.

Manufacturing

The session involved three main activities: a summary of past and future activities, talks by four invited speakers, and an interactive workshop. The workshop focused on analysing scientific papers for their potential to transition into products. The session provided valuable information for future Manufacturing challenge activities and identified several key issues, including the need for market surveys, funding for facility access, and the lack of a small-scale innovation-focused fabrication facility. The critical takeaway was the need for the UK Metamaterials Network to understand and communicate with the UK industry, particularly regarding training needs. The session was well-received, with positive feedback on the choice of speakers and the interactive workshop.