“Advanced Thermo-Structural Materials and Thermal Protection Systems” (ADTHERM’20)

S. C. Sharma¹

Published online: 22 March 2021
© Indian National Academy of Engineering 2021

Thermo-structural and high temperature materials and thermal protection systems play an important role world over in the emerging programmes of advanced technology sectors such as aerospace. These materials and systems govern the design and engineering of propulsion systems including hot flow segments in engines and nozzles, combustion chambers and thermal protection in rockets. As space-based services are increasingly becoming part of daily life of the common man, cost effective reusable space vehicle (RLV) is the way forward. For successful development and realization of RLVs, it is essential to make continuous advancements in efficient thermo structural components and thermal protection systems. This, in turn, calls for sustained efforts for basic research in material formulations, innovation in processing and testing areas and focus on building sophisticated equipments and facilities for realizing these materials and systems.

Three-day International conference on “Advanced Thermo-structural Materials and Thermal Protection Systems” (ADTHERM’20) [jointly organized by Trivandrum Chapters of Society for Polymer Science in India (SPSI) and Materials Research Society of India (MRSI)] was held during 19–21 January 2020 at Thiruvananthapuram, India. This Conference addressed and deliberated on various topics and issues related to the theme of the Conference. It focused and comprehensively covered areas such as high temperature alloys, polymers and adhesives, polymer derived ceramics, thermo-structural composites, ultra-high temperature ceramics, thermal barrier and high emissivity

coatings and state-of-the-art thermal protection systems. Apart from processing aspects of these materials and systems, scope of papers also encompassed details of their testing and application.

Selected manuscripts of the papers were submitted to the “Transactions of the Indian National Academy of Engineering” by the authors. These papers further underwent the peer review process as per the procedures laid by Springer Nature by a team of expert scientists and engineers working in this area. I am very much thankful to authors for their contributions, and reviewers for sparing their valuable time and providing extremely critical assessments which helped in raising the quality and standard of the papers in this special issue. We are thankful to Prof. K. Bhanu Sankara Rao, Editor in Chief of Transactions of INAE for his unabated interest and providing invaluable guidance in the selection of the articles and at all the stages for realizing this special and timely issue.

(Dr. S.C. Sharma)

Guest Editor/

Associate Director (R&D)

Vikram Sarabhai Space Centre

Thiruvananthapuram-695022, India

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

✉ S. C. Sharma
sharma_sc@vssc.gov.in

¹ Vikram Sarabhai Space Centre (VSSC),
Indian Space Research Organization (ISRO),
Thiruvananthapuram 695 022, Kerala, India