

WAAE 2026 Track 13 Description

Basic Information: Aerospace Propulsion Engineering

专栏题目 Title	Aerospace Propulsion Engineering
专栏介绍和征稿主题 Introduction and topics	
Introduction: Aerospace propulsion systems underpin a vast array of transport profiles, ranging from routine commercial flights to satellite deployment, interplanetary voyages, and human spaceflight. On the aviation side, coverage includes turbofan and turbojet engines, high-speed air-breathing concepts such as ramjets and scramjets, and combined-cycle architectures like TBCC and RBCC that facilitate smooth transition from subsonic to hypersonic speeds. For space applications, the focus encompasses liquid and solid rocket motors, upper-stage propulsion, orbital maneuvering thrusters, as well as chemical and electric systems for deep-space missions. Key technical challenges addressed from the propulsion-system perspective include thrust-to-weight ratio, specific impulse, combustion stability, thermal management, and mode-transition dynamics. By bringing together the aeronautical and space communities, this theme seeks to highlight the breakthrough developments that will shape the next generation of engines for aircraft, launch vehicles, and spacecraft. Topics: Hypersonic propulsion engine; Combined-cycle engines; Turbofan and turbojet engines; Liquid rocket engines; Solid rocket motor; Electric propulsion systems	

Track Chair(s):

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	Organizer's Brief Biography	

Dr. Dekun, Yan is an Associate Professor at the School of Astronautics, Northwestern Polytechnical University (NPU). His research is dedicated to aerospace propulsion theory and engineering, with a particular focus on rocket-based combined-cycle (RBCC) engines. His scholarly contributions include the investigation of full-flowpath matching characteristics in RBCC ramjet mode, published in the Journal of Propulsion Technology, as well as studies on thermal protection of fuel struts in RBCC engines. His work addresses critical challenges in wide-range engine operability, inlet-combustor matching, and active thermal management strategies for next-generation hypersonic propulsion systems. He also serves as a reviewer and session expert for academic forums.

	姓名 Name	Rui, Xve
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Organizer's Brief Biography

Dr. Rui, Xve is a full professorship at the School of Aerospace Engineering, Xi'an Jiaotong University. His research activities are centered on the fundamental physics and engineering applications of supersonic combustion and high-speed flow, with core emphases on plasma-assisted ignition and flame stabilization, combustion organization, and deep learning-based aerodynamic optimization for propulsion system design. Substantial contributions have been made to the development of active flow control techniques and the enhancement of combustion efficiency under extreme inflow conditions. Multiple nationally funded research programs have been successfully secured and executed, including projects from the National Natural Science Foundation of China, technical area funds, and major special sub-projects, addressing both fundamental mechanisms and engineering validation. Scholarly outputs have been disseminated through peer-reviewed publications in leading journals such as Combustion and Flame, Proceedings of the Combustion Institute, and AIAA Journal, alongside several invention patents for innovative combustion control methodologies. Professional recognitions include the Young Top-notch Talent of Xi'an Jiaotong University and the Wang Kuancheng Young Scholar Award. Active academic service is rendered as a council member of the Shaanxi Society of Astronautics and as a frequent reviewer for international journals in the field of propulsion and combustion.



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Organizer's Brief Biography

Dr. Lei, Shi is a Full Professor at the School of Astronautics, Northwestern Polytechnical University (NPU), and a recipient of the National Young Talent Program of China. His research is dedicated to the fundamental and applied technologies of wide-speed-range ramjet and combined-cycle propulsion, with particular emphasis on integrated inlet design, multi-source combustion, and full-flow-path AI control strategies. He also served as the principal investigator for over ten major national and provincial research projects, including key programs from the National Natural Science Foundation and published more than 20 peer-reviewed papers in high-impact journals, such as Progress in Aerospace Sciences, Aerospace Science and Technology, and Acta Astronautica. In recognition of his contributions, he has received the Young Elite Scientist Sponsorship from the China Association for Science and Technology, the Shaanxi Youth Science and Technology Nova Award, and the Shaanxi Outstanding Young Talent Award. He also serves on the editorial boards of several leading Chinese aerospace journals, including Journal of Propulsion Technology and Journal of Solid Rocket Technology, and has acted as a technical committee member and session chair for the IEEE International Conference on Mechanical and Aerospace Engineering (ICMAE). His work bridges fundamental flow and heat transfer physics with engineering design, aiming to advance the reliability and performance of next-generation hypersonic propulsion systems.