

Special Issue on
Compressor Rotating Stall, Surge, and Its Control

CALL FOR PAPERS

Rotating stall and surge, known as the typical flow instability for compressors, can be loosely characterized as the pressure breakdown as the mass flow decreases. The compressor system instability and control have been an inherently challenging problem for turbomachinery community since the advent of the gas turbine engine. Over 70 years, the characteristic, phenomena, and mechanism of stall and surge for compressors are gradually understood by experimental and numerical efforts. The detection and stall management technologies have been proposed successfully to warn the stall onset and alleviate the stall limit.

With technology advance, new achievements on understanding the flow physics of rotating stall and the control methods have emerged recently. The high precision and frequency-response measurement technology and sophisticated high-fidelity CFD methods are employed to describe a more comprehensive flow field. The stall mechanism is explained from three-dimensional and unsteady viewpoints and is correlated with the stability enhancement method design. Meanwhile, increasing attention is paid to the efficiency penalty of stability enhancement methods, with a hope to integrate them into compressor design systems.

The purpose of this special issue is to publish high-quality research papers as well as review articles addressing recent advances on compressor instability and its control method. High-quality original contributions that are not yet published or that are not currently under review by other journals or peer-reviewed conferences are sought.

Potential topics include but are not limited to the following:

- ▶ Unsteady flows in axial and centrifugal compressors
- ▶ Large-scale, high-fidelity CFD simulation
- ▶ Dynamic system modeling on rotating stall and surge
- ▶ The detection of stall precursors
- ▶ Endwall treatments
- ▶ Stall and surge in radial compressors
- ▶ Stall and surge in multistage axial compressors
- ▶ Flow losses due to stability enhancement techniques
- ▶ Swept/dihedral blades aimed at stability enhancement

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/ijrm/comps/>.

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