**Theme and objective:**

The aero-engine is the 'heart' of an aircraft and is known as the 'pearl of the industry crown'. The extreme working environment like high temperature, high pressure, high rotating speed, and the harsh requirements of thrust-to-weight ratio make the aero-engine a fault-prone system, and abnormal vibration which account for a large proportion are the most difficult to solve. The main factors leading to the above phenomenon include the imperfect vibration identification method of the entire engine, unclear vibration mechanism, and the shortage of vibration control technology, making vibration faults and accidents frequently happen, service life shorter, and maintenance cycle longer for the engine in service. These issues mentioned above have seriously affected aircraft attendance and combat capabilities.Considering the urgent requirements of the above research contents, this special session aims to provide a platform to present high-quality originals on the latest development of diagnosis and control of aero-engine vibration.

**Field:**

Vibration simulation and mechanism; Processing method of fast time-varying vibration signals; Feature extraction method for vibration signals; Diagnosis method of typical vibration faults; Intelligent diagnosis method for vibration fault; Vibration control method of the entire engines.