

46ESS-15: Aircraft Propellers and turboprop Engine Control

Feiqing Lin

As one of the most important power generation applications, gas turbine takes its role in many fields including aerospace, stationary and marine application. Among various configurations of gas turbine, turboprop engine shows its advantages when the aircraft operates at low Mach number. In order to take the best use of engine under all kinds of flying environment and pilot operations, the turboprop engine control system has to be well designed. This purpose of this paper is to present a general introduction about aircraft propellers and turboprop engine control. This will refer to a series of science and technique disciplines among which are aerodynamic, thermodynamic, aeroacoustics and automatic control. Based on those subjects, the paper will also have a look into different methods which are implanted in different turboprop design aspects including model simulation, power management, noise cancellation and controller design. Both conventional and modern styles are outlined and compared if possible.