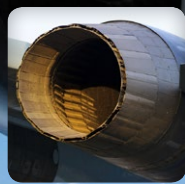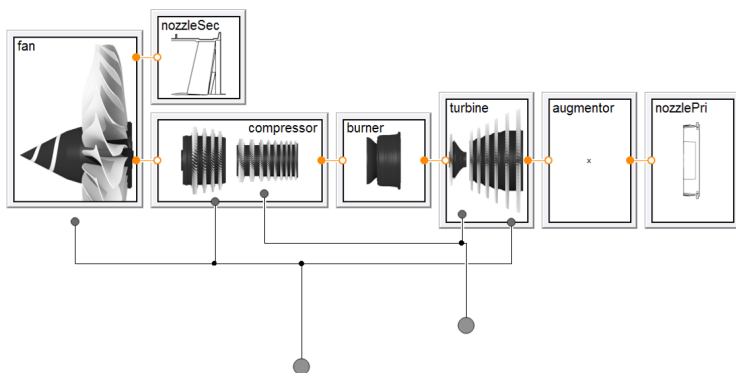# JET PROPULSION LIBRARY

▶ Modeling and simulation of aerospace gas turbines for virtual prototyping, control design and system verification.

The Jet Propulsion Library is a modeling framework for gas turbines and jet propulsion of commercial and military aircraft. The comprehensive set of components enables cycle performance analysis and optimization of all types of aerospace gas turbines. On-design and off-design performance can be studied as well as steady-state and transient behavior based on a single model.

The library provides a hierarchical framework of sub-systems and components. It contains more than 30 predefined thermodynamic cycle templates to model a large array of cycles including mixed and unmixed turbo fans, turbo props, and turbo jets. Cycles with and without augmentation as well as with different numbers of shafts can be configured.

KEY FEATURES

- Extensive library of pre-defined components and sub-systems for use in more than 30 predefined thermodynamic cycles

- Fully rigorous thermodynamic property models

- Open code and easily extensible

- Use of industry standard data formats

- Steady-state, transient, and real-time simulation in the same tool

- Weight estimation of sub-systems and components (WATE)

- Possible to print the cycle summary data and flow station data either in log or in a CSV file.

Templates allow users to set up cycle models quickly.