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C1Po3D-05: Simulation Research on the Transient Characteristics of the Helium Turbine Expander

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The helium turbine expander is one of the core components of a helium cryogenic system. The operation of the helium turbine expander varies during variable load adjustments in a helium cryogenic system, and has significant time-varying characteristics. In this paper, numerical simulations are conducted to investigate the time-varying flow field characteristics of the helium turbine during inlet load variations and to obtain the time-varying pattern of turbine efficiency. This paper is intended to provide a reference for the design of helium turbine expanders and the regulation of helium cryogenic systems.

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