softinway, Inc: Holistic Digital Engineering for Propulsion and Auxiliary Systems with AxSTREAM.SPACE - Part 2

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# ABSTRACT

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|   | Liquid propulsion for rockets (whether electrically driven or not) has always shown promising results to reach space. However, the corresponding benefits come with some challenges when compared to solid propulsion. The turbopumps that feed the propellants to the burner from the tanks require careful multidisciplinary design to ensure all the parts can work together safely and reliably. This includes the turbine(s), pumps, their mechanical connection (structural and rotor dynamics), piping, etc.Through a range of specialized solvers (0-3D), AxSTREAM.SPACE empowers engineers to develop innovative technology in space propulsion. Using AxSTREAM.SPACE, engineers can perform detailed design of the turbomachinery components (including subsonic and supersonic turbines as well as various pump configurations), evaluate propulsion systems, model thermal-fluid networks (see part 1 of the presentation) and more with the ability to combine them all in a holistic co-simulation environment to ensure their compatibility.This software demonstration will introduce the AxSTREAM.SPACE software solution and will emphasize our turbomachinery flow path suite of tools for designing, analyzing, optimizing, and coupling components from 1D to 3D.  |