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M3Or1C-04: [Invited] Dual Hydrogen-Jet Fuel Aircraft –A path to low carbon emissions

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Dual hydrogen-jet fuel aircraft have the potential to reduce greenhouse gas emissions and align with U.S. Aviation Climate Action Plan goals. However, the use of liquid hydrogen solely as fuel introduces significant challenges such as low energy per unit volume, cryogenic storage, and safety risks. Addressing these challenges will require significant investments in infrastructure and technology. The transition to a low carbon aviation sector to meet the stringent mass, volume, safety, and emission requirements economically will require a mix of sustainable aviation fuels including hydrogen, as well as an abundance of renewable energy. Dual hydrogen-jet fuel aircraft with only 14% green hydrogen by weight would require double the total fuel volume of a conventional aircraft, but it could reduce carbon emissions 30%. With less quantities of green hydrogen required, dual hydrogen-jet fuel aircraft will reduce renewable energy, hydrogen infrastructure, and technology demands. The presentation will include an overview of dual hydrogen-jet fuel concepts and describe key sustainable aviation fuel challenges including availability and costs.

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