

Abstract for 42<sup>nd</sup> International Conference on Environmental Systems

**Title:** Advanced EMU Portable Life Support System (PLSS) and Shuttle/ISS EMU Schematics, a Comparison

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**Abstract:**

In order to be able to adapt to differing vehicle interfaces such as suitport and airlock, adjust to varying vehicle pressure schedules, tolerate lower quality working fluids, and adapt to differing suit architectures as dictated by a range of mission architectures, the next generation space suit requires more adaptability and robustness over that of the current Shuttle/ISS Extra-vehicular Mobility Unit (EMU). While some features have been added to facilitate interfaces to differing vehicle and suit architectures, the key performance gains have been made via incorporation of new technologies such as the variable pressure regulators, Rapid Cycle Amine swing-bed, and Suit Water Membrane Evaporator. This paper performs a comparison between the Shuttle/ISS EMU PLSS schematic and the Advanced EMU PLSS schematic complete with a discussion for each difference.