

IAF SPACE POWER SYMPOSIUM (C3)
Late Breaking Abstracts (LBA) (LBA)

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DIAGNOSING HEALTH AND LIFESPAN OF LI-ION BATTERIES IN SPACE MISSIONS USING
MACHINE LEARNING ALGORITHMS**Abstract**

This session delves into the intricacies of diagnosing the health and lifespan of lithium-ion batteries in various operating conditions, utilizing machine learning algorithms. The discussion highlights our experimental results employing electrochemical impedance spectroscopy data and galvanostatic charge-discharge tests under varying conditions, to understand degradation patterns. It showcases the innovative application of machine learning algorithms for accurately predicting remaining battery service life. The findings can aid in formulating proactive maintenance strategies, potentially minimizing system failures and maximizing operational uptime. It offers insights that can guide future improvements in lithium-ion battery technology. Furthermore, it emphasizes the compelling advantages of machine learning in diagnosing and predicting the health and lifespan of lithium-ion batteries for space missions. This session serves as a unique forum for scientific and technical exchanges on this topic, including all system-level, architectural, and commercial aspects, plus modeling and optimization.