

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Interactive Presentations - IAF SPACE EXPLORATION SYMPOSIUM (IP)

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EXPLORING THE BENEFITS OF BIO-INSPIRED TECHNOLOGY FOR SPACE EXPLORATION: A
REVIEW

Abstract

Bio-inspired technology, also known as biomimicry, is applied in space exploration to address challenges such as maximizing mission efficiency, optimizing resource management, and minimizing environmental impact. This approach offers new insights to improve adaptability and durability in remote environments, catalyzing advancements in the development of intelligent systems and automation, which combine enhanced structures, navigation systems, materials-inspired technology, and behavioral algorithms. Results of this research emphasize the ability of systems and devices to reduce reliance on terrestrial supplies, and promote long-term sustainability. Furthermore, this study contributes to addressing the unprecedented challenges of deep space exploration in the coming years.