



COLLOQUIUM

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Unlocking Nature's Secrets: Drones, Biomimicry, and Beyond

Over millions of years, nature has evolved a wide array of processes, structures, materials, and functions that enhance efficiency. Engineers and biologists have increasingly drawn inspiration from this vast natural repository, seeking to learn from the solutions that biological systems provide. Often, nature offers the most effective answers for developing and optimizing various systems, including those used in aerospace. Natural systems present highly effective solutions to complex challenges in aerospace, such as drag reduction, locomotion, navigation, control, sensing, and design. The expanding field of biomimicry focuses on how engineers can apply these efficient, nature-inspired solutions, refined over millions of years, to modern engineering problems. Today, there is a growing demand for drones with diverse capabilities for both civilian and military applications, and significant interest in developing innovative drones that can autonomously operate in various environments and perform a wide range of missions. Over the past decade, the vast range of applications for drones has attracted considerable attention, driving the development of a variety of drones with different sizes and weights. Depending on their specific missions, drones are equipped with different types of equipment and payloads. The numerous advantages that drones offer have led to extensive research focused on optimizing and enhancing their performance.