



Recent Advances in Quantum Biology

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Message from the Guest Editor

One of the great challenges of modern science is to bridge the gap between atomic and cellular level phenomena that affect outcomes in living systems. A potentially transformational facet of this challenge is quantum biology: understanding how quantum properties play governing roles in biological functions. For example, key mechanisms for bird navigation, olfactory sensing, and photosynthesis implicate quantum effects in biological systems. The defining feature of quantum biology is that quantum effects such as coherence and superposition are found at room temperature, in wet environments that typically have lots of motion. Implementation of these principles can lead to a new generation of bio-inspired quantum technologies that can function at ambient temperature and will change the way we think about our world, with applications for improved regenerative medicine, enhanced wound healing, improved human performance, efficient solar energy harvesting, and vision based magnetoreception.





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Message from the Editor-in-Chief

We get more and more evidence that quantum theory is the correct description of nature. It was born a century ago by explaining a few paradoxical results that could not be understood in the framework of classical physics. Today, quantum physics leads technological revolution in metrology, communication, computation, and the design of novel materials. Still it needs more solid foundations, and we need to develop a deeper understanding of how it can be used for new applications.

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