

“Quick-changing Camouflage in Octopus and Squid:
potential biomimetic and biophotonic applications in
engineering and materials science”



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Dr. Hanlon is a field biologist who studies the sensory and motor aspects of rapid adaptive camouflage in cephalopods under all aspects of lighting in the natural environment. Laboratory research involves live-animal, hypothesis-driven experimentation on several key aspects of the adaptive camouflage and signaling systems. Overall, 150 peer-reviewed scientific papers have been published on these and related subjects.

Research relevant to this talk at Brown University includes the cephalopod eye that acts as a sensor to selectively extract certain visual background cues to decide which camouflage to implement on any background. Extraocular photoreceptors that help mediate or fine-tune this response are currently under study. Cephalopods have “magical skin” that produces an impressive array of visual illusions. Various pigmentary organs and structural reflectors manipulate light both actively and passively, and some of these biological structures and materials show promise for the development of bio-inspired sensors and materials.

Host: Robert Hurt

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