

The Unusual Origin of Peacock Brown

June 28 2005

Many animals' colors originate from photonic crystals, which reflect specific colors of light as a result of their nanoscopic structures, rather than from pigments, which derive their colors from their chemical composition. The brown in peacocks' tails is a particularly unusual type of photonic crystal coloration, according to research soon to appear in the journal *Physical Review E*.

Brown is a mixture of light of different colors. Generally, photonic crystals in animal coloring produce pure colors, such as blue, green, yellow or violet. Nevertheless, researchers at Fudan University in Shanghai have found that the brown in peacocks' feathers is indeed due to microscopic structure. The researchers' experiments and analysis show that peacocks' brown microstructures are a good deal more complex than most natural photonic crystals.

Mimicking the photonic crystals in peacock tail feathers could lead to new ways to manipulate light in cutting edge optical instruments. In addition, the discovery points the way to new paints and coatings that are not susceptible to the chemical changes that can degrade pigments over time.

Publication: Y. Li et al., *Physical Review E*, Forthcoming article

Source: American Physical Society

Citation: The Unusual Origin of Peacock Brown (2005, June 28) retrieved 20 March 2024 from <https://phys.org/news/2005-06-unusual-peacock-brown.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.