

What Birds Have Taught Us About Structural Color
Thursday May 5, 2016
3:30 pm
101 Rowland Hall
Dept. of Physics and Astronomy Colloquium

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Most colored materials owe their color to the absorption of light: certain wavelengths are absorbed and others transmitted. The color comes from the remaining wavelengths that are reflected or scattered back to the observer. Nature often uses a different type of coloration, structural color, which doesn't rely on absorption: certain wavelengths are transmitted, while others constructively interfere and are reflected. Structural colors are common in birds and particularly in blue feathers, which consist of disordered arrays of pores that scatter light. I will discuss efforts to make synthetic systems that mimic the bird feathers. The synthetic samples display rich blues and greens, but not red. Interestingly, the same trend occurs in birds: there are no known red birds with angle-independent structural color. I will present experiments and arguments

based on scattering theory that shed some light on why red structural colors are difficult to make.

Host: Clare Yu