Corrigendum*

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Structural Colouration in Nature
***Resonance*, Vol.30, No.8, pp.1077–1090, August 2025**
DOI: https://doi.org/10.1007/s12045-025-1848-4

Dear Readers,

Our recent article, 'Structural Colouration in Nature', *Resonance*, August 2025, has a few errors that we would like to correct. We regret these mistakes and have provided detailed clarifications below.

Structural colouration in peacock feathers

By using the term 'proteinaceous structures' in several places in the article we gave the impression that all structural colour is due to structures made of protein. This is not true, and on page 1077 we meant to say that nanoscale structures are composed of materials such as chitin (a polysaccharide), melanin (a pigment), and keratin (a protein), among others. On page 1086 we meant to say that the protein rods contain melanin and not that the protein rods are made up of melanin. On page 1089 please ignore the word 'proteinaceous' nanostructures. It should be 'biological nanostructures'.

Structural colouration in a male peacock's tail feather occurs due to interaction of light with biological nanostructures in the barbules of the feather. The cortex of differently coloured barbules has been reported to contain 2D photonic crystals. These 2D photonic crystals are periodic nanostructures consisting of melanin rods that are connected by keratin, a protein [Yoshiko & Kinoshita (2002)]. A Fabry–Perot etalon is formed between two adjacent melanin rods of finite thickness and spacing.

Coherent and Incoherent Scattering of Light

Scattering of light can be coherent or incoherent. In the case of coherent scattering, scattered waves from adjacent scatterers interact. These scatterers are spatially separated by distances comparable to or smaller than the wavelengths of visible light [RO Prum (1999)]. A definite phase relationship exists between incoming and scattered waves [Sun, etc (2013)].

Whereas in the case of incoherent scattering, the scatterers are spatially independent, i.e. the spatial separation between scatterers is greater than the wavelength of light. Rayleigh, Tyndall and Mie scattering are examples of incoherent scattering models [RO Prum (1999)]. There is no systematic phase relationship among waves scattered incoherently by individual scatterers [Bohren & Huffman (1983)]. The brilliant white colour observed in Winter plumage of Rock Ptarmigan Lagopus mutus, is an example of structural colouration as a result of incoherent scattering as described by Dyck, J. (1979).

The blue colour of the feathers of the Cotinga mayana bird is due to coherent scattering and not due to incoherent scattering. We have made a mistake on page 1079 by giving this example for incoherent scattering.

*Vol.30, No.11, DOI: https://doi.org/10.1007/s12045-025-1899-6

Iridescence

Iridescence is not solely due to biological nanostructures. In *Table* 1, we want to clarify that biological materials such as leaves and flowers can have pigments; and non-biological items such as CDs and plastic scales exhibit structural colour due to diffraction of light and birefringence, respectively. Iridescence is direction dependant which implies that minute changes in viewing geometry may significantly change the observed colours. When the mean path length of scattered waves is affected by change in angle of viewing or illuminations, the phase relationships among the scattered waves is modified as a result. The wavelengths that are constructively reinforced after scattering are also affected by such a change. Iridescent colours are produced by orientation-dependant coherent scattering of light. Having said that, it is not necessary that coherent scattering always yields iridescence. The lack of iridescence, for example in the case of blue barbs of Cotinga is due to lack of higher scale spatial organization [RO Prum (1999)]. Incoherent scattering does not produce iridescence [Sun, etc. (2013)].

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