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# The 'Interact' Placement

## The iridescent properties of butterflies and paint

Captivated by their ephemeral beauty, fragility and capacity for continuous transformation, I have recently turned my attention to butterflies. Crucially in their race for survival these short-lived creatures dazzle with vibrant fluctuating colours to attract mates and ward off predators.

A colour as dramatic, dynamic and eye-catching as the metallic blue of the wings of the exotic Morpho butterfly has never been encountered in the art world. Until now artists have tried in vain to capture such 'living jewels'. Unlike and unmatched by the chemical pigments of the artist's palette, this oscillating colour is created by transparent, colourless structures which – similar to prisms - split, diffract and reflect light. Notably, scientific research into the astonishing nano-scale architectures found on butterfly wings, capable of producing such eye-catching optical effects, has recently led to the development and manufacture of innovative light interference flakes.

Now, for the first time, this new technology offers artist the wonderful, yet challenging potential opportunity to accurately depict butterfly iridescence. However, these flakes (developed with lucrative applications in the car, cosmetic and plastic industries in mind) have a major drawback, seriously impeding and restricting their advancement in art. They do not adhere to colour theory as applied in painting.

Morpho didius, wing section

Simulation of wing section

During my 'Interact' placement at Birmingham University (Jan – July 08) I further persevered in my attempt to overcome this incompatibility by focusing on the complex mechanisms inherent in butterflies' iridescent colour production.

As iridescent flakes mirror analogous nano-structures found in butterfly scales, biomimetics can offer vital clues on how to convert these novel materials to the painters' palette.

**The iridescent properties of butterflies and paints (/schools/biosciences/research/artists-in-residence/interact/iridescence-of-butterflies-and-paint.aspx)**

This work was part of the **Interact (Artists in Industry) (http://www.interact.mmu.ac.uk/placements/profile.php?artist=29)** programme.

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