

Colour Group (GB) online conference on *Iridescence*, 3 February 2021

16:00-16:30 Michael Berry, HH Wills Physics Laboratory, University of Bristol

## **Unweaving the rainbow's colours**

*(Greek: Iridos=rainbow. Iris: Goddess of rainbows)*

The coloured arch that we see in the sky is an illusion: there is no arch there, and different people see different sunlit raindrops. Its colours arise not only from the refractive dispersion of light rays (Isaac Newton), but are strongly influenced by wave interference (Thomas Young). Colour is not wavelength: understanding rainbow colours, and simulating them on-screen, requires both the optics of transparent spheres and our visual perception, involving the spectral response curves of the cones in our eyes. Natural rainbows are weakly coloured, but it is possible to create physicists' idealisations, with intensely saturated colours.

### **Michael Berry brief biography**

Sir Michael Berry is the Melville Wills Professor of Physics (Emeritus) at the University of Bristol, where he has been for more than twice as long as he has not. His research centres on the relations between physical theories at different levels of description (classical and quantum physics, ray optics and wave optics...). In addition to these deeply mathematical studies, he also delights in finding familiar phenomena illustrating deep concepts – the arcane in the mundane: rainbows, the sparkling of the sun on the sea, twinkling starlight, polarised light in the sky, tidal bores...

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