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Structural colours in blue-banded bee JONES WAN¹, LIXIIN DAI, JENSEN LI, KWOK-KWONG FUNG, CHE-TING CHAN, Department of Physics, Hong Kong University of Science and Technology — Periodic, micro-textured biological materials are ubiquitous in nature. Electromagnetic waves at different frequencies are selectively reflected by such materials. This phenomenon is the origin of structural colours observed in variety of insects. In this work, we analyze the mechanisms that lead to the bluish-green colour of the blue-banded bee feathers. The reflection spectrum of the blue-banded bee feather was calculated by the transfer matrix method (TMM). The reflection peaks found are compatible within the experimental data. In addition to Bragg scattering, guided resonance has been observed in our theoretical calculation, which leads to a novel understanding of the structural colours in blue-banded bees.

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