

Supporting information

Heat Transfer Properties of Morpho Butterfly Wings and the Dependence of These Properties on the Wing Surface Structure

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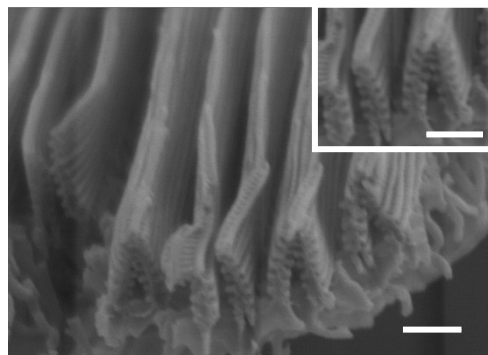


Figure S1. Cross-sectional SEM image of a scale on a MM wing. The inset shows a higher magnification. Scale bar shows 1 μm .

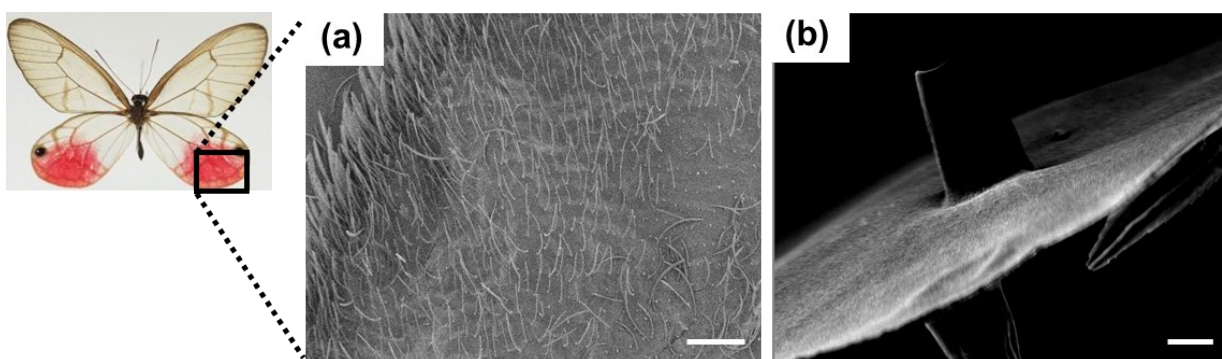


Figure S2. (a) Surface and (b) cross-section of a CE wing. line-shaped scales were

coloured by a red pigment on the wing base^{1, 2}. Scale bars show 250 μm and 5 μm in Figure S2 (a) and (b), respectively.

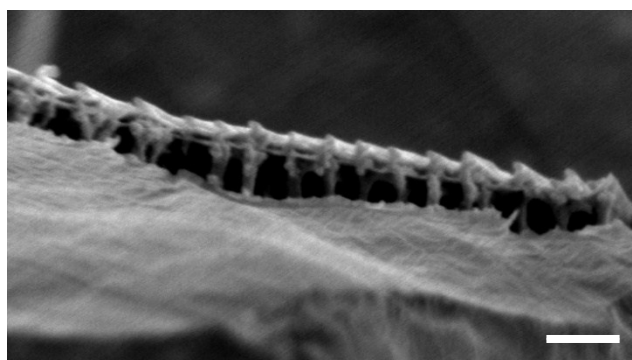


Fig. S3. The cross-sectional SEM image of a MA wing. Scale bar shows 1 μm .

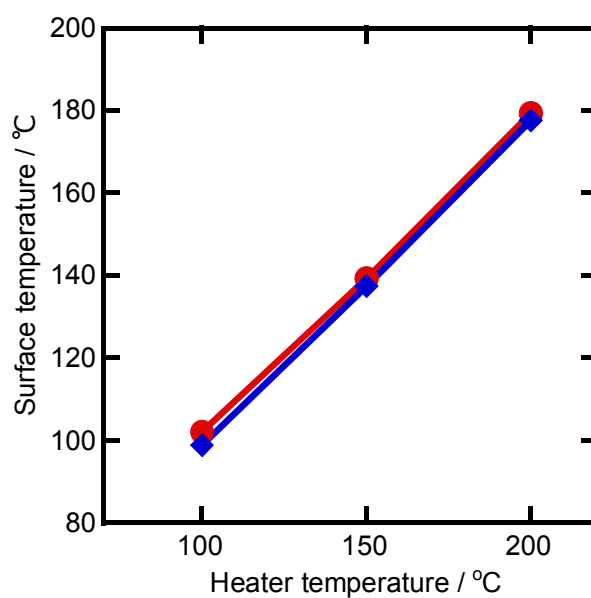


Figure S4. Relationship between the surface temperature of the MM (●) and MA (◆) wings and the heater temperature.

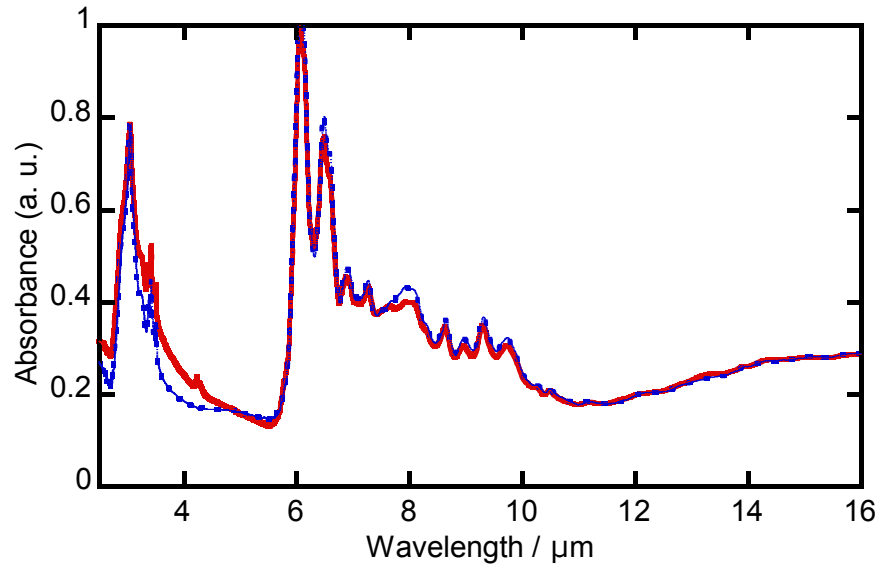


Fig. S5. Absorbance properties at MIR (2.5-16μm) of the MM (solid line) and MA (dashed line) wings.

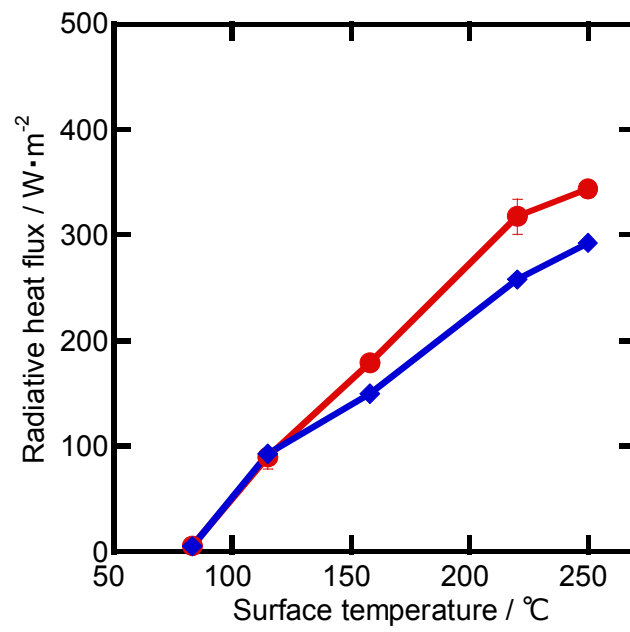


Fig. S6. Relationship between radiative heat flux of the MM (●) and MA (◆) wings and the heater temperature.

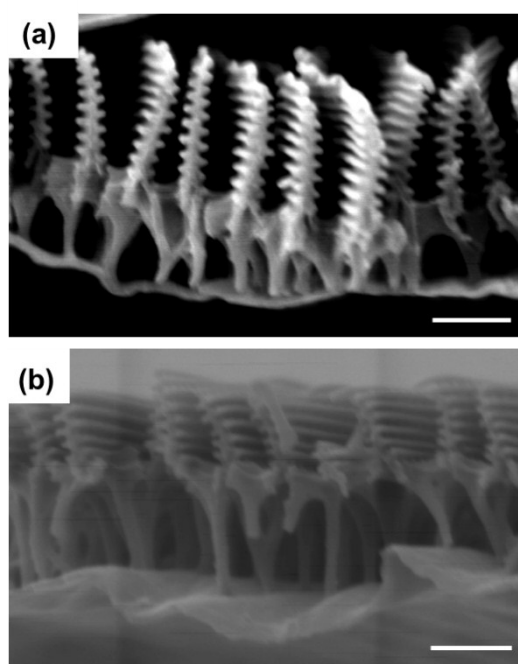


Fig. S7. Cross-sectional SEM images of the MM wings after the heat treatment at (a)250 °C and (b)300 °C. Scale bar shows 1 μm.

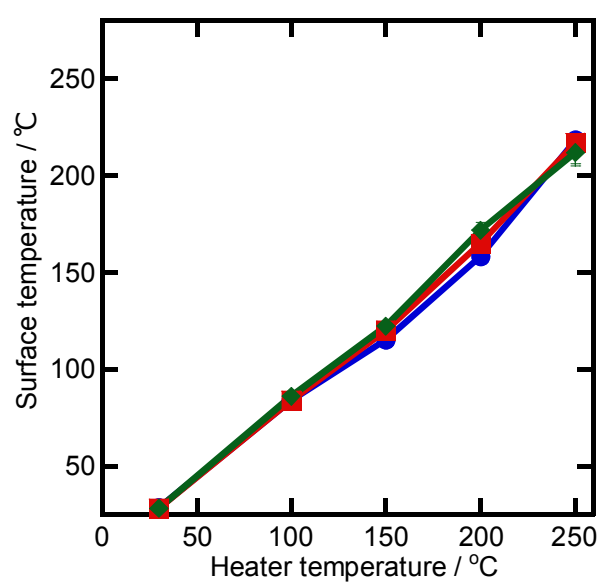


Figure S8. Surface temperature changes of the MM wings before (●) and after the 10 minutes treatment at 250 (■) and 300 °C (◆).

¹ Luis Miguel Constantino, *ResearchGate* (2016)

² D. G. Stavenga, S. Stowe, K. Siebke, J. Zeil and K. Arikawa, *Proc. R. Soc. Lond. B* (2004) 271, 1577–1584