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Butterfly visual pigments

Vanhoutte, Kürt Johan André

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RIJKSUNIVERSITEIT GRONINGEN

**Butterfly visual pigments:
molecular cloning and optical reflections**

Proefschrift

ter verkrijging van het doctoraat in de
Wiskunde en Natuurwetenschappen
aan de Rijksuniversiteit Groningen
op gezag van de
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door

Kürt Johan André Vanhoutte

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Promotor: Prof. dr. D.G. Stavenga

Beoordelingscommissie: Prof. dr. K. Arikawa
Prof. dr. W.J. de Grip
Prof. dr. A.C. Kooijman

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aan Joyce

Cover: 2D topology of the amino acid sequence of the UV absorbing opsin derived from cDNA sequences obtained from the satyrine butterfly *Bicyclus anynana* (see Chapter 2).

Absorbance difference spectra representing the fast conversion of green rhodopsin into the metarhodopsin state while illuminating with intense white light after prolonged dark adaptation (see Chapter 4).

Photograph of corneal reflections after bleaching green visual pigment in the nymphalid butterfly *Polygonia c-album* (see Chapter 5).

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