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Butterfly visual pigments

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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
Rector Magnificus, dr. F. Zwarts,
in het openbaar te verdedigen op
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om 16.00 uur

door

Kürt Johan André Vanhoutte

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te Waregem (België)

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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).

Contents

Chapter 1: General Introduction	1
Chapter 2: Opsin cDNA sequences of a UV and green rhodopsin of the satyrine butterfly <i>Bicyclus anynana</i>	15
Chapter 3: Modeling visual pigment processes in butterfly rhabdoms	27
Chapter 4: Visual pigment absorption spectra of the nymphalid butterfly <i>Polygonia c-album</i> derived from <i>in vivo</i> reflection measurements.....	41
Chapter 5: Analyzing the reflections from single ommatidia in the butterfly compound eye with Voronoi diagrams.....	63
Chapter 6: <i>In vivo</i> microspectrophotometry of single butterfly ommatidia in dorsal and ventral eye regions.....	75
Chapter 7: Summary and General Discussion	87
References	97
Nederlandse samenvatting	107
Nawoord	111