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## Optically probing structure and organization : single-molecule spectroscopy on polyethylene films and a resonance Raman study of a carotenoid

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# Optically Probing Structure and Organization

Alexander C. Wirtz

The top image on the cover represents a DBATT molecule adsorbed on the lateral surface of a polyethylene crystal. The bottom image displays the composition of the  $1240\text{ cm}^{-1}$  C-C stretch vibrational mode of a spheroidene molecule.

# Optically Probing Structure and Organization

single-molecule spectroscopy on polyethylene films  
and a resonance Raman study of a carotenoid

PROEFSCHRIFT

ter verkrijging van  
de graad van Doctor aan de Universiteit Leiden,  
op gezag van de Rector Magnificus Dr. D.D. Breimer,  
hoogleraar in de faculteit der Wiskunde en  
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**Alexander Carel Wirtz**

geboren te Eindhoven

in 1977

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*aan Petra en mijn familie  
aan mijn moeder*



Monument  
Dit plaatsmoment  
Jouw leven in een moment,  
Want het tijdsmoment verstreek.

Ons leven nu jouw monument  
Ons laat-me-niet-alleen moment,  
Voor jouw tijdsmoment,  
Dat veel te snel  
Verstreek.





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