Glow with the flow: Quantifying blood flow and photoluminescence signal in biological tissue

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Glow With The Flow.
A thesis that contributes to the development of optical techniques to assess microcirculation functionality for the diagnosis, monitoring, therapy guidance and understanding of many diseases ranging from the onset of septic shock to the delivery of drugs to tumours. The first part of this thesis aims to develop a non-invasive technique to quantify microcirculatory blood flow velocity based on laser speckle flowmetry. The second part is devoted to the quantification of optical signals arising from photoluminescent upconversion nanoparticles for sensitive detection in biomedical tissues. The combination of these techniques is particularly useful in the context of tumour therapy by providing information on tumour angiogenesis, enabling molecular contrast and delivering nanoparticle-based drugs.
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Academisch proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het College voor Promoties ingestelde commissie, in het openbaar te verdedigen in de Agnietenkapel
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door

Annemarie Nadort

tegenover te Zaanstad
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