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From sample structure to optical properties and back

A theoretical framework for quantitative OCT and its clinical application

Almasian, M.

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Propositions

supplemental to the PhD thesis: *From sample structure to optical properties and back: a theoretical framework for quantitative OCT and its clinical application*

1. While speckle is commonly seen as a source of noise in OCT images, it also contains information about sample properties – this thesis
2. Silica microbeads suspended in water are not a good tissue model – this thesis
3. Concentration dependent scattering and multiple scattering are two different phenomena with the same effect on the OCT attenuation coefficient. However, in the analysis both need to be taken into account separately – this thesis
4. Calibration and validation are crucial in determining the OCT attenuation coefficient – this thesis
5. Standardized and automated data analysis is essential in determining the effectiveness of sample differentiation using the OCT attenuation coefficient – this thesis
6. Interdisciplinary collaborations render research not only more interesting, but also easier at times
7. “The difference between science and the arts is not that they are different sides of the same coin... or even different parts of the same continuum, but rather, they are manifestations of the same thing. The arts and sciences are avatars of human creativity” – Mae Jemison
8. “We are not going to be able to operate our Spaceship Earth successfully nor for much longer unless we see it as a whole spaceship and our fate as common. It has to be everybody or nobody” – Buckminster Fuller
9. “Rebellion is perhaps among the deepest roots of science: the refusal to accept the present order of things” – Carlo Rovelli
10. “Perhaps poetry is another of science’s deepest roots: the capacity to see beyond the visible” – Carlo Rovelli

Stellingen

behorend bij het proefschrift: *From sample structure to optical properties and back: a theoretical framework for quantitative OCT and its clinical application*

1. Speckle in OCT beelden wordt vaak als ruis gezien, maar bevat ook informatie over sample eigenschappen – dit proefschrift
2. Silicabollen in water zijn geen goed model voor weefsel – dit proefschrift
3. Concentratie-afhankelijke verstrooiing en meervoudige verstrooiing zijn twee verschillende fenomenen met hetzelfde effect op de gemeten OCT attenuatie coëfficiënt. Ze dienen wel onafhankelijk behandeld te worden in de analyse – dit proefschrift
4. Calibratie en validatie zijn cruciaal bij het bepalen van de OCT attenuatie coëfficiënt – dit proefschrift
5. Gestandaardiseerde en geautomatiseerde data-analyse is essentieel voor het bepalen van het sample onderscheidend vermogen van de OCT attenuatie coëfficiënt – dit proefschrift
6. Interdisciplinaire samenwerkingen maken het onderzoek niet alleen interessanter, maar soms ook makkelijker
7. "The difference between science and the arts is not that they are different sides of the same coin... or even different parts of the same continuum, but rather, they are manifestations of the same thing. The arts and sciences are avatars of human creativity" – Mae Jemison
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