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Authors

Ayers, Frederick R
Cuccia, David J
Kelly, Kristen M
[et al.](#)

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WIDE-FIELD SPATIAL MAPPING OF *IN-VIVO* TATTOO SKIN OPTICAL PROPERTIES USING MODULATED IMAGING

Frederick R. Ayers, David J. Cuccia, Kristen M. Kelly, Anthony J. Durkin

Beckman Laser Institute, University of California, Irvine, Irvine, CA

Background and Objectives: Modulated Imaging is a new modality capable of wide-field, spatially resolved measurement of *in-vivo* optical properties. Based on spatial light modulation, the method is inexpensive, non-contact, and allows spatial mapping of tissue absorption and reduced scattering coefficients at any wavelength between 450 and 1100 nm. Currently, clinicians rely on qualitative visual inspection to guide parameter selection for laser-based tattoo removal. Modulated Imaging provides quantitative measurements of multi-colored tattooed skin which may help guide treatment and objectively assess response. **Study Design/Materials and Methods:** We have measured the spatially-varying optical properties of multi-colored tattooed skin over a 18 mm x 27 mm field of view at wavelengths ranging from 650 nm to 1000 nm using Modulated Imaging. These measurements were compared to a similar field of view of non-tattooed skin from an adjacent area.

Results: We have determined the differentiated optical properties *in-vivo* of multi-colored tattooed skin versus non-tattooed skin.

Conclusions: Modulated Imaging provides spatially resolved quantitative information with strong potential both for guidance of laser tattoo removal and for quantitative assessment of response to treatment.