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Permalink
https://escholarship.org/uc/item/8hb8525n

Journal
JOURNAL OF THE AMERICAN ACADEMY OF DERMATOLOGY, 76(6)

ISSN
0190-9622

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Publication Date
2017-06-01

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Peer reviewed
Melanoma surveillance by multimode, hyperspectral dermoscopy and self-imaging using smartphone in high risk patients

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Melanoma, the fastest growing cancer worldwide, kills more than one person every hour in the United States and costs more than $2.4 billion per year. Determining the depth and distribution of the dermal melanin noninvasively will help dermatologists to discriminate normal nevi versus melanoma. We developed a multimode dermoscopy system that combines polarization (cross and parallel), autofluorescence and hyperspectral (400-800 nm) imaging to noninvasively quantify and map in 3D, in vivo distribution of melanin, collagen and hemoglobin oxygenation in pigmented skin lesions. Hemoglobin and melanin spectra have significant overlap which may also be seen in other lesions, such as inflammatory processes, this finding may confound the diagnosis. Clinical suspicion is factitious dermatitis and the patient is derived to mental health. Melanoma surveillance by multimode, hyperspectral dermoscopy and self-imaging using smartphone in high risk patients.

Commercial support: None identified.