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Yimin Zhong* (yiminz@uci.edu) and **Kui Ren** (kr2002@columbia.edu). *Reconstruction of acoustic and optical properties in PAT from multispectral data.*

This work is concerned with the simultaneous reconstruction of acoustic and optical properties in photoacoustic (PAT). We consider the inverse problem linearized at constant backgrounds and prove that it is possible to uniquely reconstruct the perturbations of the acoustic sound speed, acoustic attenuation and optical absorption coefficient with data collected from optical illuminations at multiple wavelengths. We derive some stability estimates associated to the simultaneous reconstruction process under some additional assumptions. Numerical simulations based on synthetic data are presented to support the theoretical derivation. (Received September 20, 2018)