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Rachel Grotheer*, 1021 Dulaney Valley Road, Baltimore, MD 21204, and **Natalie Durgin, Chenxi Huang, Shuang Li, Anna Ma, Deanna Needell** and **Jing Qin**. *Application of Stochastic Algorithms for Multiple Measurement Vectors to the Hyperspectral Diffuse Optical Tomography Problem*. Preliminary report.

The multiple measurement vector (MMV) problem has generated a growing interest in signal processing. In the MMV setting, multiple signals, with a commonality such as joint support, are to be recovered using more than one measurement vector. We develop stochastic algorithms both to recover the joint support and reconstruct the signals in the MMV setting. We then apply these algorithms to the reconstruction problem in hyperspectral diffuse optical tomography (hyDOT), a type of medical imaging used primarily for soft tissue imaging. In this application, we consider a signal to be the level of light absorption at each location in the tissue imaged for a particular wavelength, and the non-zero entries of those signals the absorption coefficient values in cancerous cells. We find that the stochastic algorithms are effective in reconstructing and recovering the support of the signals, and in a much shorter time than a conventional gradient descent algorithm. (Received September 25, 2018)