NEW DEVELOPMENTS IN FREQUENCY DOMAIN OPTICAL TOMOGRAPHY. PART II. APPLICATION WITH A L-BFGS ASSOCIATED TO AN INEXACT LINE SEARCH

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ABSTRACT. This second part deals with the application of the presented formulations for the reconstruction of optical properties in frequency domain optical tomography with the finite element method. We use the Limited memory BFGS algorithm with an inexact line search in order to avoid numerous evaluations of the objective function. Normalization of the objective function with measurements and independent scaling of its gradient are used to improve the quality of the reconstruction. The results show a better recovering of both the absorption and scattering coefficients.