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| **Abstract:** |  |
| Electroencephalography (EEG) has been used widely to record electric potentials at electrodes placed on the scalp. Beamformers have been used in electromagnetic source imaging to find back from these potentials the neuronal dipole current sources that produce them. An MRI image with a resolution of 1 mm is used to provide detailed anatomical information for the construction of a realistic head model. The governing Poisson's equation is solved using a finite difference method. The rectangular grid used in the finite difference approach is compatible with the one used in an MRI image, leading to straightforward structural modeling. Both scalar and vector beamformers are considered in the study. Two metrics, namely the localization error and full width at half maximum, are used to compare the performance of six beamformers. Results for a 128-electrode system with additive Gaussian noise demonstrate that the scalar minimum variance beamformer gives the best overall performance for single-source reconstruction. | |