

## Accounting for source depth in time reversal communications

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**Abstract:** Passive Time Reversal (pTR) is a low complexity receiver scheme that uses multichannel probing for time signal refocusing, thus reducing time spreading and improving inter-symbol interference. Recognizing that signals travelling through different paths are subject to arrival-angle-related Doppler displacements, this letter proposes a further improvement to pTR that applies correcting frequency shifts optimized for beams formed along each path arrival angle. The proposed equalizer is tested with real data and the results show that the proposed approach outperforms both pTR and the modified pTR channel combiners providing an MSE gain of 4.9 dB and 4.2 dB, respectively.