

This paper considers the joint design of transmit waveforms and receive filters for airborne multiple-input-multiple-output (MIMO) radar systems. The aim is to maximize the output signal-to-interference-plus-noise ratio (SINR) such that we can achieve enhanced detection performance for a slow-moving target that might be obscured by clutter and jamming. We devise a cyclic algorithm to tackle the non-convex joint design problem. Considering practical implementation issues, we extend the algorithm to deal with constrained designs (i.e., the design of waveforms under a constant-envelope constraint and a similarity constraint, respectively). The convergence of all the devised algorithms is guaranteed. We provide several numerical examples to demonstrate the effectiveness of the proposed algorithms.