Title: Doppler Ambiguity Resolution in Coded FMCW MIMO Radar

This invention relates to Doppler velocity ambiguity resolution in multiple input multiple output (MIMO) radar systems, and more specifically, to a new method and system capable of extending the maximum unambiguous velocity and achieving hyper-resolution estimate in frequency modulated continuous-wave (FMCW) MIMO radar.

This invention presents a new high-resolution FMCW radar system with improved maximum measurable velocity and super-resolution capability in estimating target's velocity. This new radar system consists of multiple transmit antennas and multiple receive antennas. The transmit antennas send the FMCW waveform in a CDM mode with a staggered PRF co-pulsing scheme. The receive antennas process the echoes reflected by the targets. Our specially designed signal processing methods comprising of range processing, Doppler processing, and angle estimation achieve hyper-resolution and extended measurable maximum velocity.

No suitable figure