

Space-Time Adaptive Processing: Application to Radar

DEF-3518P

Agenda

Fundamental Considerations and Digital Signal Processing Review

- Course Overview: STAP for Radar
- Digital Signal Processing Review

Temporal and Spatial Beamforming

- Digital and Adaptive Beamforming
- Doppler Processing
- Space-Time Detection Theory

STAP Fundamentals

- Introduction to STAP
- Ground Clutter Mitigation Using STAP
- STAP Performance Metrics

STAP Algorithms/Architectures

- Reduced-Dimension STAP
- Reduced-Rank STAP
- Jammer Mitigation
- Covariance/Weight Vector Estimation Techniques
- Direction of Arrival Estimation in STAP-Based Systems

Practical Concerns (Including computer laboratory and numerical exercises)

- System Error Effects and Array Calibration Techniques
- Ground Moving Target Indication
- STAP in Heterogeneous Clutter Environments

Computer Laboratories

- Basics and Signal Characterization
- Post-Doppler STAP
- Reduced Rank STAP