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Sinong Quan is currently an Associate Professor with the College of Electronic Science and Technology, National University of Defense Technology. He has authored more than 60 papers in peer-reviewed journals, co-authored 3 books, and holds more than 10 patents, among many conference papers. Prof. Quan was awarded the National Postdoctoral Innovative Talent Support Program in 2022. He was a recipient of the first-class science and technology progress award of ministry of education in 2022, and the second-class nature science Award of Chinese institute of electronics in 2021. He was also the winner of the outstanding doctoral dissertation of the PLA in 2021 and the outstanding master dissertation of Hunan Province in 2018. Prof. Quan currently serves as a Reviewer for the ISPRS JPRS, IEEE TGRS, IEEE TCOM, IEEE JSTARS, IEEE GRSL and several other international journals in the remote sensing field. His research interests include imaging radar countermeasure and recognition, polarimetric radar information processing, target detection, pattern recognition, and machine learning. Contact Email: quansinong13@nudt.edu.cn		
Speech Title (English):		
Radar Target Polarimetric Decomposition and Anti-Interference Recognition		
Speech Abstract		
The appearance of polarimetric imaging radar makes it possible to obtain the full polarimetric scattering information of target, thus can invert the geometric shape, spatial direction, dielectric constant and other important physical parameters, which is recognized as the most potential avenue of radar target recognition. However, for the increasingly complex manmade target recognition problem, there are still scientific problems such as unclear revelation of scattering mechanism and weak generalization of polarization features, which are the core bottlenecks restricting the target recognition performance of polarimetric imaging radar. This report introduces the general concepts of radar polarization and target polarization, expounds the basic concepts and physical principles of target polarization scattering, gives the definition, connotation, and mathematical expression of classical polarimetric decomposition, and analyzes the inherent problems in it. On this basis, the concept and general framework of fine polarimetric decomposition are proposed based on physical scattering modeling, and actual samples are given for verification. Finally, using fine polarimetric decomposition as a basic tool, the idea of mathematical programming-based feature design is proposed, and its application and potential in vehicle detection, ship detection, ship recognition and other scenarios are discussed.		