

Radar Scattering Phenomenology and Prediction Models

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A variety of radar sensors and data collection modes are used to detect, track, image, and identify targets. However, all radar collections are subject to the laws of scattering physics, which do not always agree with simplifying assumptions made in radar signal processing algorithms. In this talk, we discuss scattering phenomenology and the trade space between model accuracy and computational efficiency. We present both electromagnetic and signal processing models for scattering prediction (the forward problem) and feature extraction (the inverse problem). We consider the increasing model complexity required for bistatic and multistatic radar systems. Examples are shown for synthetic aperture radar imaging.