Abstracts

A time-frequency analysis method for radar scattering

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A time-frequency analysis method to study electromagnetic scattering is presented and demonstrated using canonical objects. The time-frequency analysis method utilizes the Bargmann transform to formulate the signal representation in phase space. The use of the Bargmann transform leads to an attractive parametric signal representation in terms of complex polynomials, and elliptical filters can be constructed to crop or extract selected areas of the phase plane. The signal representation and filtering operations are demonstrated using scattering responses from spheres and thin wires, and the prominent scattering features are identified and extracted.

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