

Loubna El Ouali, "Numerical study of the target identification with natural resonances extraction", 2012.

Abstract

Natural resonance frequencies contained in a target's radar signature can serve to identify the target. Further, the full set of natural resonances depends only upon the target's geometry and composition. They are independent of the target's position or orientation to the radar.

Natural resonance target recognition approaches require identification of the target's complex resonances using the measured radar signature. This can occur either through comparison with a pre-established resonance data base or through processing of the measured signature.

In this project, the feasibility of a target identification system with impulsive-like time domain radars is evaluated through numerical electromagnetic simulations in CST and the natural resonance frequencies extraction with the so-called Matrix Pencil Method.