

SOCIETY OF PHYSICS STUDENTS (SPS) COLLOQUIUM

Reconstructing Rigid Moving Targets Using High Resolution Range (HRR) Radar

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Abstract:

This presentation to the SPS/Physics Department will discuss some of the features of an innovative technique to determine spatial reconstruction of scattering centers from a rigid, moving target. The imaging of moving targets using Synthetic Aperture Radar (SAR) remains a difficult problem. Typical SAR images of moving targets are blurred, displaced, and streaked. If a three dimensional structure of the target were known, along with the orientation of the target with respect to the sensor, the motion of the arbitrarily and randomly rotating target could be “frozen” and SAR would be able to produce a clear image with the properly placed object. This presentation will focus on using High Resolution Range (HRR) radar data from a minimum of four observations of three scattering centers to produce spatial reconstruction. Rotational motion of the target relative to the sensor provides the necessary information for positioning the scattering centers. The development is based on geometric and trigonometric relationships of the target.

WHERE

SI – 117 (next to the Physics Computer Lab)

WHEN

Noon- 1pm

Thursday, April 3, 2008