

LECTURE

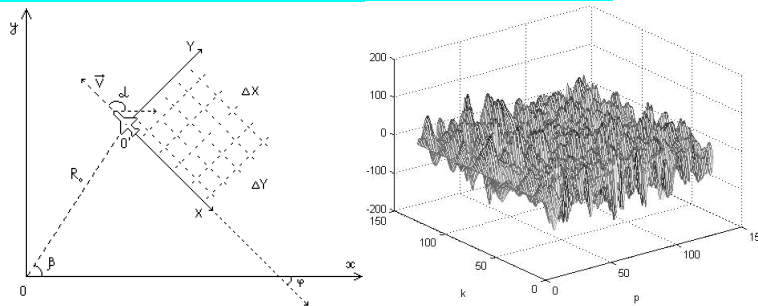
INVERSE SYNTHETIC APERTURE RADAR MODELING AND TARGET IMAGING TECHNOLOGY

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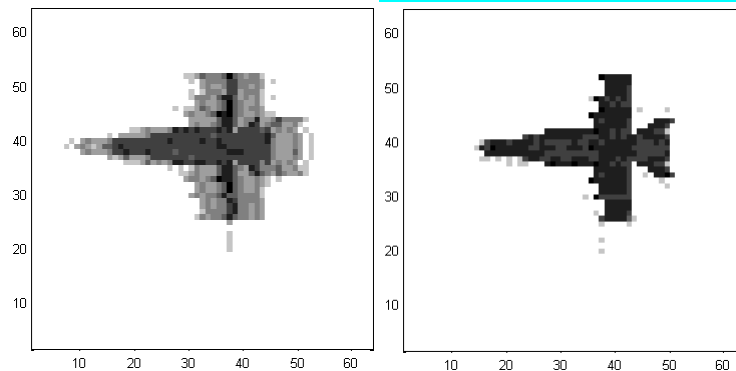
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1. ISAR Geometry and Signal Modeling.



$$\hat{S}(p, t) = \sum_{ijk} a_{ijk} \text{rect} \frac{t - t_{ijk}(p)}{T} \exp \left\{ -j \left[\omega(t - t_{ijk}(p)) + b(t - t_{ijk}(p))^2 \right] \right\}$$

3. ISAR Image Reconstruction Algorithms.



$$a(\hat{k}, \hat{p}) = \sum_{p=1}^N \left[\sum_{k=1}^K \hat{S}(k, p) \cdot \exp[j\Phi(k, p)] \cdot \exp \left(j2\pi \frac{k\hat{k}}{K} \right) \right] \exp \left(j2\pi \frac{p\hat{p}}{N} \right)$$

4. The ISAR system can be used to recognize an un-cooperative target in order to take special counter measures and neutralize it.