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机动目标的逆合成孔径雷达成像

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INVERSE SYNTHETIC APERTURE RADAR IMAGING OF MANEUVERING TARGET

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摘要 逆合成孔径雷达（ISAR)和合成孔径雷达（SAR)都是利用目标（场景）与雷达的相对运动,提高横向分辨率,实现对目标（场景）的成像。SAR的运动方是雷达平台,可控制作平稳飞行,且用仪器测校其偏离误差;ISAR的运动方通常是非合作目标,运动不受控制,且难以精确测量。当目标作机动飞行时,以目标作固定基准,雷达等效地在空间形成流形复杂的逆合成孔径（阵列）,对这种情况下成像的问题进行了系统的研究

关键词： 逆合成孔径雷达 机动目标 干涉ISAR

Abstract： Inverse synthetic aperture radar (ISAR) and synthetic aperture radar (SAR) both utilize the relative motion of the target (scene) and radar to improve cross range resolution, and then obtain the target's image. Usually, in SAR, the radar moves steadily by controlling, and the deviation can be measured, but, in ISAR, the target's motion is non cooperative, and is difficult to measure. When the target maneuvers, and if the target is taken as reference, the radar will form an inverse synthetic aperture (array) equivalently. This paper studies this imaging problem systematically.

Keywords： inver se synthetic apertur e radar (ISAR) maneuver ing tar get IN-ISAR

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