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传感器与信号处理

# 一种联合极化的距离瞬时多普勒ISAR成像方法

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摘要：

在传统的逆合成孔径雷达(inverse synthetic aperture radar, ISAR)成像中，基于Clean技术的距离瞬时多普勒ISAR成像能够有效地提取散射点中心，因此得到了广泛应用。相比于传统ISAR，极化逆合成孔径雷达(polarimetric inverse synthetic aperture radar, Pol ISAR)能够提供更丰富的信息。本文研究了一种联合极化的距离瞬时多普勒ISAR成像技术，该方法能够对多个极化通道进行联合距离瞬时多普勒成像处理，更准确地提取强散射点信息，减少目标数据量，使各极化通道信息得到有效的融合，同时也能进一步减弱噪声的影响，避免大量虚假点的产生。仿真数据验证了本文方法的有效性。

关键词： 极化逆合成孔径雷达 距离瞬时多普勒 极化解调频Clean

# ISAR imaging via RID combined with polarimetric technique

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Abstract:

In the traditional inverse synthetic aperture radar (ISAR) imaging, the range instantaneous Doppler (RID) algorithm based on Clean technique has been widely used to extract the scattering center. Comparing with the traditional ISAR, the polarimetric ISAR (Pol ISAR) can supply more information about the target. An ISAR imaging method via RID algorithm combined with polarimetric technique is proposed. With this method, the bright scatterers are extracted accurately and the data volume decreases greatly, the fusion of polarimetric channel information performs well. Meanwhile, the effect of noise is weakened farther, thus avoiding false point targets. By simulated data, the effectiveness of the propose method is validated.

Keywords: polarimetric inverse synthetic aperture radar (Pol ISAR) range instantaneous Doppler (RID) polarimetric dechirp Clean (Pol DC)

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