

## 采用调频连续波的高速动目标检测方法

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**摘要** 调频连续波雷达的低发射功率使其具有低截获、隐蔽性好、抗反辐射导弹能力强的特点. 提出了一种利用三角波调制调频连续波进行地面高速运动目标检测的新方法, 根据三角波调制调频连续波正、负调频导致动目标成像结果在径向反向移动的特点, 通过对正、负调频信号分别成像, 在补偿了载机平台的连续运动以及正、负调频信号之间的时间差对图像的影响后, 将两幅图像通过偏置相位中心天线(DPCA)处理, 检测出高速动目标. 当检测出动目标后, 进一步提取出两幅图中的动目标图像, 将动目标图像作相关处理, 估算出动目标成像结果的径向移动量, 解算出动目标的径向速度, 完成对动目标的真实定位. 仿真数据的处理结果验证了本方法的有效性.

**关键词** [地面高速动目标检测](#) [三角波调制调频连续波](#) [相关处理](#)

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## High speed ground moving target detection research using triangular FMCW modulation

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### Abstract

The Frequency Modulation Continuous Wave (FMCW) radar has the characteristics of low probability of interception, good hidden property and ability to counter anti-radiation missiles. This paper proposes a new method for high speed ground moving target detection using triangular FMCW modulation. According to the characteristic of the reverse range shift induced by the upslope and downslope of triangular FMCW modulation, the upslope and downslope are imaged, respectively. After compensation of continuous motion of the platform and time difference between upslope and downslope signals for imaging, the moving target can be detected through displaced phase center antenna(DPCA) technology. When the moving target is detected, we extract the moving target image, and use the correlation processing to get the range shift, which can help to estimate the target range velocity, and to find the real position of the target. Computer simulation verifies the validity of the method. <BR>

**Key words** [GMTD](#) [triangular FMCW modulation](#) [correlation processing](#)

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