电子与信息学报 2006 28 (3): 526-531 ISSN: 1009-5896 CN: 11-4494/TN

论文

# 被动合成孔径声呐阵列目标远程定位

黄 勇, 李 宇, 刘纪元

中国科学院声学研究所 北京 100080

收稿日期 2004-8-12 修回日期 2005-3-3 网络版发布日期 2007-12-18 接受日期

摘要
该文讨论了被动合成孔径声呐远程定位问题。首先得到了合成孔径声呐阵列接收的声场方程，利用简正波滤波新方法，通过短线阵的水平移动，实现远程目标方位、深度及距离的定位。数值仿真结果表明，通过阵列的移动，可以合成大的孔径，提高目标的方位、距离估计精度。对合成孔径声呐阵列，利用简正波滤波方法可以很有效地实现对目标方位、深度及距离的估计。

关键词 被动合成孔径声呐 远程定位 简正波滤波

分类号 U666.7

# Long Distance Source Localization with Passive Synthetic Aperture Sonar

Huang Yong, Li Yu, Liu Ji-yuan

Institute of Acoustics, Chinese Academy of Sciences, Beijing 100080, China

Abstract
In this paper, a new technique about long distance source localization with passive synthetic aperture sonar array is presented. At first, a sound field receiving equation for synthetic aperture sonar is derived. Then, this new method is described in detail that obtains a long distant passive azimuth, range and depth source localization by the normal-mode filter and the large synthetic aperture through horizontal moving of a short line array. The simulated results indicate that the estimation of accuracy in azimuth and range source localization is improved by this method. In addition, it is certificated that the passive synthetic aperture sonar array can realize effectively long distant source localization by normal-mode filtering method.

Key words Passive synthetic aperture sonar Long distance location Normal-mode filtering

DOI:

通讯作者

作者个人主页 黄 勇; 李 宇; 刘纪元