

利用阵元异振幅优化超声传感器阵列的指向性能

作者: 郑贤中 王乘

单位: 华中科技大学 水电与数字化工程学院

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摘要:

超声传感器阵列是提高超声指向性性能的重要手段, 本文提出利用阵列中阵元发射不同振幅超声波的方法进一步改善发射阵列的指向性性能。通过数值计算与阵元同振幅发射模式的指向性进行模拟比较, 结果表明该方法在超声阵列阵元分布形式完全相同的情况下, 获得的超声波波束不但能保证主瓣尖锐的指向性, 能有效的抑制旁瓣数量和旁瓣级, 避免能量分散, 提高超声发射效率。

关键词: 超声波 指向性 阵元异振幅 传感器阵列

Improvement of Directivity of Ultrasonic Sensor Array by multi-Array-Elements That Transmit Different Amplitude

Author's Name: Zheng Xianzhong Wang Cheng

Institution: College of Hydropower and Information Engineering, Huazhong Univ. of Sci. & Tech.

Abstract:

The sensor array is important method to improve the directivity of ultrasonic. A new method is proposed to improve the directivity of ultrasonic sensor array by multi-array elements that transmit different amplitude ultrasonic from each other. The numerical simulation of this method is compared with conventional method, the results show that under the same conditions this method that not only can improve the directivity of ultrasonic, but also suppress the range sidelobes efficiently and improve energy efficiency.

Keywords: Ultrasonic; Directivity; Different amplitude of array-element; Array of sensors;

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