

论文

一种基于非视距鉴别加权拟合的矿井超宽带定位方法

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摘要:

为减小因非视距带来的定位误差, 提出一种基于非视距鉴别加权拟合的矿井超宽带定位方法, 该方法首先进行非视距鉴别, 鉴别的原理是比较视距情况下距离测量值的概率密度函数与非视距情况下概率密度函数的接近程度, 并将两者的接近程度用于确定非视距加权因子, 加权因子反映了非视距和视距参考结点在位置估计中所占的比重, 然后提出一种新的加权因子最小二乘法定位方法, 通过模拟仿真试验对提出的方法进行验证, 实验结果表明该方法可以达到较高的定位精度。

关键词: 矿井; TOA; NLOS鉴别; 定位; 加权最小二乘法

Mine ultra wideband positioning method based on non line of sight identification weighted fitting

Abstract:

In order to reduce the positioning error bring for non line of sight transmission, this paper put forward a mine ultra wideband positioning method based on non line of sight identification weighted fitting. This method, first of all, non line of sight be identified, the principle of the method is to compare the degree of close between the PDF (Probability Distribution Function) under the condition of LOS (Line of Sight) and the PDF of distance measurement value, and the close degree of both will be used to determine the non line of sight weighted factor, the weighting factor reflects the proportion of the NLOS (Non Line of Sight) and LOS reference nodes in the position estimation process, then put forward a new weighted factor least square method localization method, through the simulation experiment to verify the method in this paper, the experimental results show that this method can achieve high precision.

Keywords: underground mine; TOA; NLOS identification; localization; weighted least squares method

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