物理

基于离散傅里叶变换计算介质损耗因数的二周期修正法

徐智博 **1**, 李宝华 **1**, 金承业 **2**

1. 吉林大学 电子科学与工程学院, |长春 130012|2. 吉林省乐金电子有限公司, |长春 130062

摘要：

提出一种基于离散傅里叶变换的二周期修正法, 利用该方法可计算电力系统的介质损耗因数. 通过将电网信号两个周期的采样修正为一个周期, 可减小由频率偏移导致的频谱泄露和截断误差. 误差分析表明, 该算法与传统方法(加窗法)的精度具有相同的数量级, 但其运算时间比传统方法运算时间减小3倍以上.

关键词： 离散傅里叶变换　介质损耗因数　二周期修正法

Two-Cycle Melioration Algorithm of |Calculating　Dielectric Dissipation Factor Based on DFT

XU Zhi bo **1**, LI Bao hua **1**, JIN Cheng ye **2**

1. College of |Electronic Science and Engineering, Jilin University, Changchun 130012, China;
2. Jilin Province Lejin Electronic Co.Ltd., Changchun 130062, China

Abstract:

 A two-cycle melioration algorithm based on discrete Fourier transform (DFT) was presented. This method can be used to calculate the dielectric dissipation factor of electric power system. The   frequency   spectrum   leaking and the error of truncation caused by frequency deviation can be reduced by means of   amending   two periods of the grid signal into one period. Error analysis shows that the accuracy of this   algorithm   is the same as that of traditional solutions (adding window method), but the operation time of this method is 3 times less than those of the traditional solutions.

Keywords: discrete Fourier transform (DFT)   dielectric dissipation factor;   two-cycle melioration   algorithm

通讯作者: 李宝华
作者简介：
作者Email: libh@jlu.edu.cn

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