

用于水质硝酸盐浓度在线检测的电磁传感器设计

作者：喻嵘, 王玉峰, 王艳庆, 王晓磊, 周军乐

单位：南昌大学信息工程学院

基金项目：面向动态本地无线环境的电波传播特征认知方法研究

摘要：

近年来水质污染的深层次问题逐渐显露，无机污染物尤其是硝酸盐或者亚硝酸盐对人类的健康造成了严重威胁。本文将曲状电磁线圈和叉指电容结合起来，设计了一种新型的平面电磁传感器，实现了水体中的硝酸盐浓度在线监测。基于COMSOL Multiphysics 3.5a软件对多种不同参数的传感器进行建模仿真，最终确定最佳传感器模型，为进一步研究水质监测系统传感器模块奠定了基础。

关键词：传感器；平面电磁；叉指电容；硝酸盐；电磁场

Design of electromagnetic sensor used for the real-time detections of nitrate concentrations in water

Author's Name:

Institution:

Abstract:

In recent years, the underlying problems of water contaminations have emerged, and inorganic pollutants, especially nitrate or nitrite have posed a threat to people's health. This paper presents a design of new-type planar electromagnetic sensor, which realizes the real-time detections to nitrate concentrations in water by combining the meander magnetic coil with interdigital capacitor. Employing COMSOL Multiphysics 3.5a, an optimal sensor model is decided after modeling and simulating sensors of different parameters, thus, providing a basis for further studying the sensor modules in the system of water detections.

Keywords: sensor; planar electromagnetic; interdigital capacitor; nitrate; electromagnetic field

投稿时间：2013-03-04

[查看pdf文件](#)