

光电器件

用于电力系统的光学电流互感器技术进展

焦斌亮, 郑绳植

燕山大学 光电子系, 河北 秦皇岛 066004

收稿日期 修回日期 网络版发布日期 2007-1-27 接受日期

摘要

介绍了光学电流测量技术的发展情况, 描述了目前几种主要的互感器结构及其基本原理, 并对各自存在的问题及解决途径进行了讨论。从研究现状来看, 块状玻璃型传感器技术相对成熟, 已经有商业产品问世; 混合型传感器测量精度较高, 但传感头有源电路的供电技术复杂, 还没有圆满的解决方案; 全光纤型是光学电流互感器发展的最终目标, 目前存在的主要问题是光纤的固有线性双折射难以处理, 有赖于新型光纤材料及集成光学元件的进一步发展。最后综合评述了光学电流互感器技术的发展趋势及产业化前景。

关键词 [电流测量](#) [光学电流互感器](#) [光纤传感器](#) [法拉第效应](#)

分类号 [TP212.14-1](#)

Progress in Optical Current Transducer Technique for Power Systems

JIAO Bin-liang,ZHENG Sheng-xuan

Department of Opto-Electronics, Yanshan University, Qinhuangdao 066004, China

Abstract

The technology of the optical measurement of current is reviewed. Several different approaches being developed and their principles are described. The major problems of these approaches and their probable solving methods are discussed. At the present stage, bulk glass transducer technology is more mature than others and some commercial products have been developed. The hybrid transducer has a higher accuracy but the active circuit in its sensing head involves a complicated power supply problem which has not been solved completely. The all-fiber type is the developing goal of optical current transducer and its main problem at present is the linear birefringence in sensing fiber. This problem is dependent on the further development of new fiber material and integrated optical devices. Finally, the developing trend and the commercial prospects of optical current transducers are analyzed.

Key words [current measurement](#) [optical current trasducer](#) [fiber sensor](#) [Faraday effect](#)

DOI:

通讯作者 焦斌亮

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(448KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)

文章反馈

- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“电流测量”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [焦斌亮](#)
- [郑绳植](#)