

Lichttechnisches Institut Engesserstrasse 13 Geb. 30.34 76131 Karlsruhe www.lti.kit.edu

KSOP - Research Project / Hiwi

Software Development and Automatization of a Temperature-Dependent Time-Resolved Photoluminescence Experiment



Research Field Experimental

Studies

Electrical Engineering, Physics and related

Start Flexible

Motivation

Photoluminescence (PL) spectroscopy and in particular time-resolved PL spectroscopy is one of the standard methods used to characterise all sorts of different materials. It is used in virtually every research lab and companies R&D departments. Thus, having basic knowledge of this technique and respective experimental details is essential for future research engineers. Taking PL spectroscopy to the next level and gaining even more information about investigated materials is achieved by performing measurements at various sample temperatures. However, this increases the time it takes to perform the experiment and usually calls for automation of the experiments. At LTI we have a state-of-the-art PL experiment that is custom-build and thus not yet fully automatized.

This project offers you insights into how an experiment is automatized in a laboratory environment. And hands-on experience how to program a software that is user friendly and designed to fit the needs of the operator.

Tasks

Combining multiple already existing LabView based programs that control different instruments into one software suite. Implementing devices that currently use proprietary software.

Prerequisites

Basic programming experience are prerequisite. However, an interest in learning new programming languages and concepts is more important. Problem solving skills and fun in trial and error learning are key. A general interest in machine – software interfaces and design of software user experience is beneficial. First experiences in spectroscopic experiments are advantageous but not essential.

Contact Dr. Nils Rosemann

Engesserstr. 13
Geb. 30.34 R.224
+49-721-608-42541

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nils.rosemann@kit.edu

