



# LumiDoz-10

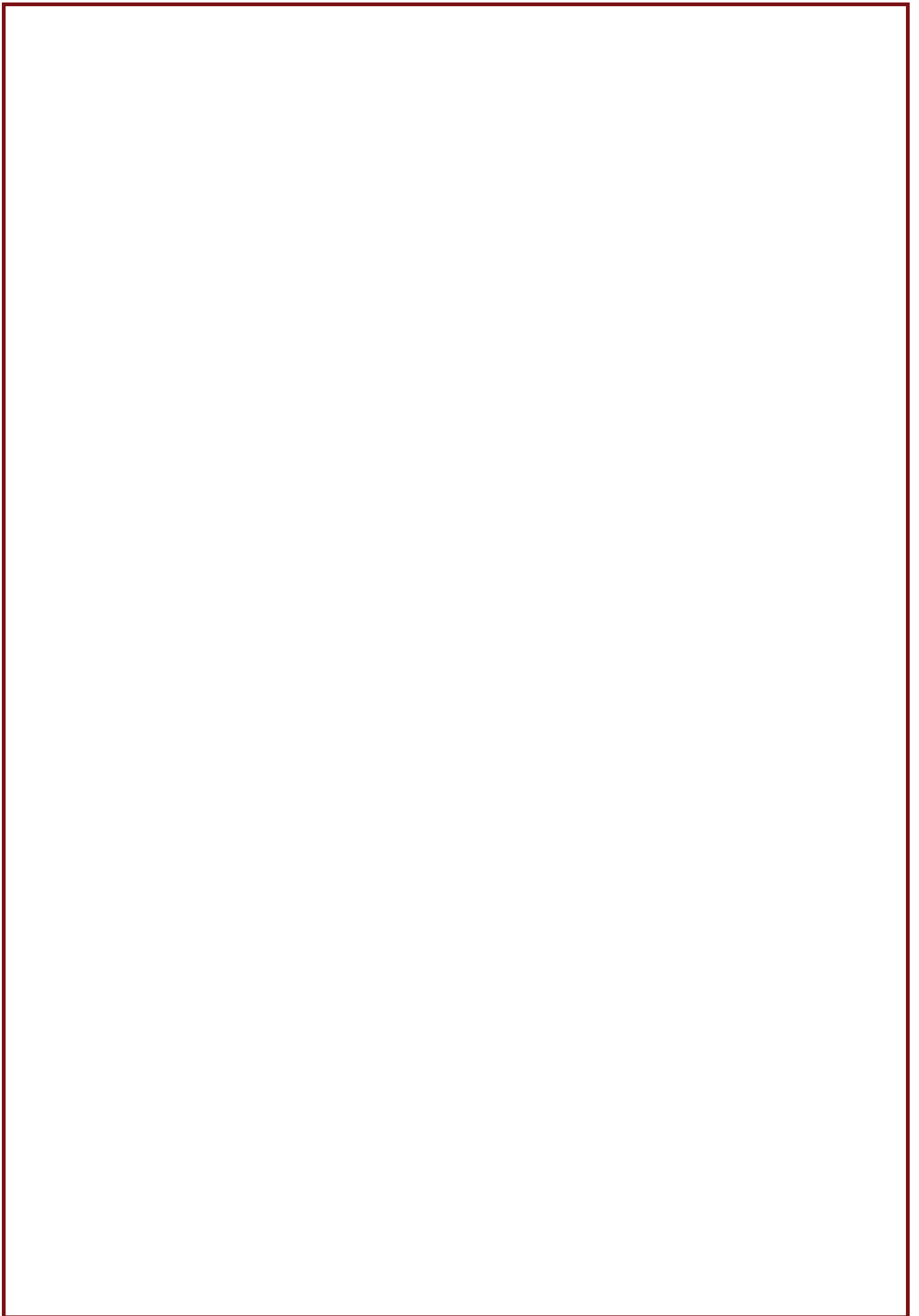
**10<sup>th</sup> International Conference on  
Luminescence and ESR Dosimetry**

## Book of Abstracts



**5-7 September 2016  
Çukurova University, Adana, TURKEY**

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## A New Software for Evaluating Thermoluminescence Glow Peaks

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### Abstract

Insulator and semiconductor materials, especially some phosphors, exhibit one or more thermoluminescence (TL) glow peaks when the charge carriers are released after heating process. TL glow curves are characteristic of the different trap levels for the band gap of the material. The traps are characterized by certain physical parameters that include trap depth or activation energy (E), frequency factor (s) and order of kinetics (b). Therefore, the subject of TL kinetic parameters (E, s, and b) calculation is very important in TL dosimetry studies. In this study, a new software called “Thermoluminescence Parameters Calculator (TLPC)” is presented to calculate certain TL kinetic parameters of the first, second and general order TL glow peaks. This software was developed by using C# programming language on Microsoft Visual Studio.Net platform. In order to verify the calculated values using TLPC software and determine the reliability of it, first, second and general order non-overlapping TL glow peaks were used obtained from the Mathematica. As a result of the study, it can be said that the TL kinetic parameters of the phosphors, which have clear peaks, can be calculated easily, practically and correctly by using the developed TLPC program.

**Keywords:** *Luminescence, Kinetic parameters, TLPC, Mathematica.*

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