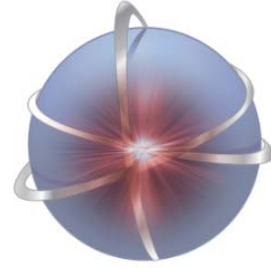




# **TESNAT 2016**

*28-30 April 2016 Mustafa Kemal University, Hatay, Turkey*

International Conference on  
**T**heoretical and  
**E**xperimental  
**S**tudies in  
**N**uclear  
**A**pplications and  
**T**echnology



## *Abstract Book*

**Editors**

**Eyyup TEL, Abdullah KAPLAN, Bayram DEMİR**



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# Abstract Book

Editors

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[tesnat.org](http://tesnat.org)

Dear Colleagues,

Welcome to the International Conference on Theoretical and Experimental Studies in Nuclear Applications and Technology (TESNAT 2016). This conference is the second step of the TESNAT Conference series. TESNAT 2015 was held in Osmaniye Korkut Ata University with 177 participants. 38 oral and 77 poster presentations had been given last year. The world of nuclear physics is an exciting area in which to work, and we'll continue to meet and bring inspired people together in conference like this, to ensure TESNAT remains at the cutting edge.

We intend in this conference to discuss and compare all applicable methods as are being applied at present in nuclear physics. The problems faced in these fields at present are focused in the development of new methods and in the improving of existing techniques to achieve an understanding of existing experimental data and in predicting with high reliability new properties and processes. We propose this conference as a mean to bring together all these related communities with the goal of creating an enriching dialog across the disciplines. The conference will give an overview on the theoretical and experimental challenges in nuclear physics and applications.

We'd like to thank each of you for attending our conference and bringing your expertise to our gathering. You are truly our greatest asset today and tomorrow, and we could not accomplish what we do without your support and leadership.

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## **An Initial Study of Developing a TL Glow-Curve Deconvolution Application**

**YÜKSEL M.<sup>1</sup>, ÜNSAL E.<sup>2</sup>, DOĞAN T.<sup>3</sup>, TOPAKSU M.<sup>1</sup>**

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Thermoluminescence (TL) is the thermally stimulated light emitted from an insulator or semiconductor when it is heated following of previous absorption of energy from ionizing radiation at a temperature appreciably lower than that required for producing glow peaks. These TL glow peaks (or glow curves) are used in radiation dosimetry applications in order to determine exposed radiation doses. TL glow curves of dosimetric materials are in most cases complex curves consisting of many overlapping glow peaks. Therefore, the deconvolution of complex glow curves into their individual components is widely applied for dosimetric purposes and for evaluating the kinetic parameters using curve fitting methods. Current applications on TL glow curve deconvolution in the literature are not open source and most of them are out of date, for this reason there is a need for an open source updated and improvable applicaiton. In this study, the initial studies about developing a new TL glow curve deconvolution application have been presented. This new application will be written in C# programming language by using Visual Studio.Net development tool and it will be tested in the Microsoft Windows-based operating systems. In this application, a new approach based on the general one-trap TL equation will be adopted to analyze the TL glow curve with the traditional first-order, second-order and general-order kinetics model.

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