TESNAT 2016

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

International Conference on Theoretical and Experimental Studies in Nuclear Applications and Technology

Abstract Book

Editors

Eyyup TEL, Abdullah KAPLAN, Bayram DEMİR

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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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Determination of TL Kinetic Parameters and Linear Attenuation Coefficient of Etibor-68

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Thermoluminescence (TL) which is emission of light from some insulator or semiconductor samples when they are heated. The light energy released is derived from electron displacements within the crystal lattice of such a substance caused by previous exposure to ionizing radiation. The samples are heated and the data appears as a graph of TL against temperature is called a glow-curve. By using the glow-curves we can calculate the TL kinetic parameters which gives us information about crystal lattice properties of the samples with different methods. Determination of linear attenuation coefficient of a thermoluminescent material is very important in order to figure out its tissue equivalence and radiation dose distribution on human tissue and organs or inside phantoms. This study consists of two parts and the first part of it, TL kinetic parameters (E, s and b) of Etibor-68 were calculated by using various heating rate (VHR) and computerized glow curve deconvolution (CGCD) methods. The second part of the study, linear attenuation coefficient of the Etibor-68 were determined at different gamma ray energies with an energy dispersive XRF system with a Si(Li) detector and multi-channel analyzer with software (Ortec, SLP140P, USA).

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