In-Situ Investigation of Surface Energy

SEBAHATTİN TÜZEMEN

Prof at
Department of Solid State Physics
Faculty of Science, Atatürk University
Erzurum, Turkey
stuzemen@atauni.edu.tr

ABSTRACT

Structural properties of semi-conducting thin film and bulk materials on the surface are of grate importance for the purposes of optoelectronic device and sensor applications. These surface properties are strongly effected by the micro and nano formations either intentionally or unintentionally constituted on the surface. One important parameter that influences the surface properties is the surface energy which is strongly affected by the surface formation, components and even the conductivity types of the materials. Surface energy is a crucial measure for harvesting of light and other incident species. Therefore, a comprehensive study on the issue will be discussed in order for various applications and different materials, introducing theories, methods and certain examples.

BRIEF BIOGRAPHY

After completing BSc (1985) and MSc (1987) in Physics at Ataturk University (AU), he finished his PhD (1993) on the characterization of defect centers based on microwave technologies, at the University of Manchester (UMIST-Electrical Engineering and Electronics). He won the UK's ORS awards (1991/92) due to his capacitance spectroscopy (C2-DLTS) experiments. He returned to Turkey in 1993 and became a faculty member as Associate Professor at AU (1994). He pursued post-doctorate studies on positron annihilation at the Center of Atomic Energy of Saclay-Paris. After he was appointed to full professorship position at AU (1999), he worked as a Fulbright Professor at the Ultra-Fast Spectroscopy Labs in the USA. He has been in the administration of AU as respectively Head of High Energy and Plasma Physics, Vice Dean, Dean, Vice Rector and Director of Techno-park, and also established the Eurasian Silk Road Universities Consortium (ESRUC), involving institutions from China to France. He was the Editor-in-Chief of Turk J Phys (2010-15). While he is currently working at AU as a faculty member of solid state physics, he is the author of several Turkish translation books and "The Quantum and Cosmic Codes of the Universe" published by Cambridge Scholars Publishing (2020). Along with his current studies on solar cells and gas sensors, he is presently conducting studies such as "quantum gravitation models" and "electronic behaviors in high gravity" in theoretical physics. He is married with two children named Mert and Mevsim.