Hana Ibrahim Elswei د. هناء ابراهيم الصويعي

Curriculum Vitae (CV)

16 of January 1985 Tripoli Libya.
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Tripoli University
Department of physics

CURRENT POSITION

University of Tripoli, Faculty of Education Janzour
Head of the study and examination system of the Faculty

Previously Held Administrative Positions in the Physics Department

1. Head of Physics Department
2. System Coordinator of the Physics Department For two semesters.
3. Quality Coordinator of the Physics Department From the fall semester 2018 to the spring semester 2020.
4. Supervisor of project students for two semesters.

ACADEMIC EXPERIENCE

Lecturer at the University of Tripoli-Janzour, Physics Department from (March 2018**)**

1. Temperature And Material Properties
2. Thermodynamics
3. Mathematical Physics 1
4. Mathematical Physics 2
5. Solar Energy
6. Atomic Physics
7. General Electricity
8. Solid State Physics 1
9. Advanced Solid State Practical
10. Quantum Mechanics
11. The Laser And Its Applications

EDUCATION

2012-2017 Metallurgy Technology Faculty, UNIVERSITY OF Belgrade:

Field of Academic Expertise: Materials Engineering

PhD. (Hons.) Material Science and Engineering, July 2017

I have passed twelve courses with A degree; the courses included: selected topics of numerical analysis, chemical kinetics, thermodynamics of the solid state, physics of materials, methods of characterization of ceramic and glass materials, materials science and engineering, structure and properties of composite materials, processing and crystal growth of single crystal for electronics, finite element method in materials engineering, physical mechanical testing of materials, solid state physics, final exam

Doctoral Dissertation: SYNTHESIS AND CHARACTERIZATION OF OPTICAL POLYMER COMPOSITES BASED ON SINGLE CRYSTALS

Supervisors: Dr Vesna Radojević, full professor, University of Belgrade
Dr Zorica Lazarević, Associate Research Professor, University of Belgrade

Brief Synopsis of Research:

Research was organized in two directions: a) synthesis of single-crystal CaF_2 as a functional carrier and embedding in the polymer matrix; b) synthesis and characterization of polymer matrix composites incorporating CdSe quantum dots. In such an organized way research can be traced and influence the organization and size of crystals in the optical and mechanical properties of the resulting composite.
Modified vertical Bridgman method in a vacuum obtained is a high quality single crystal CaF_2. The resulting crystal was investigated by Raman and IR spectroscopy. The crystal structure was confirmed by X-ray structural analysis. In accordance with the theory group spotted one and two infrared Raman optical mode. Low photoluminescence testifies that the concentration of oxygen defects in CaF_2 was small. All completed surveys show that the resulting single crystal CaF_2 has a good optical quality. After grinding, the particles of the single crystal are embedded in a polymer matrix of poly (methyl methacrylate). Incorporating monocrystalline CaF_2 composite was obtained with preserved optical properties of single crystals, whereas the thermal and mechanical properties improved.
Quantum dots (QD) are monocrystalline semiconductor nanostructures, whose head electric charge spatially confined in all three dimensions. The material from which the QD made defines their characteristic energy. However, the exact value of the energy gap are determined by the size of the point. The consequence of this is the fact that quantum dots made of the same material but different sizes emit radiation of different wavelengths. The present work was carried out testing of the conditions for obtaining a QD doped poly (methyl methacrylate) thin film by method of casting from solution. The thermal properties of composites were investigated by the DSC method. Optical properties were investigated by analyzing the emission spectrum of picosecond measurement system for measuring the lifetimes of luminescence. Mechanical properties were tested using the method of nanoindentation. The results of DSC revealed that for composite doped PMMA film have somewhat lower T_g in comparison with pure PMMA. The reason for this decrease in T_g is QD interaction with the main chain of the polymer PMMA. Nanoindentation test results show that the addition QD increases reduced modulus of elasticity and hardness. I kind of behavior of the composite film points to the interaction of nanoparticles QD and the base polymer chain PMMA. These particles prevent the initiation of a polymer chain and thus improve the mechanical properties of the composite. Fluorescence spectrum of the film showed that QD retain their optical properties and respond well in the PMMA matrix to excite.

SCHOLARLY PUBLICATIONS

" Synthesis and Performance of Polymer Based Magnetic Composite Sensing Element " ; Digest Journal of Nanomaterials and Biostructures Vol. 10, No. 4, October - December 2015, p. 1475 – 1483

"The Bridgman method growth, spectroscopic characterization and photoluminescence of calcium fluoride single crystals optical quality"; Elsevier Editorial System(tm) for Optical Materials

"Growth, characterization and optical quality of calcium fluoride single crystals grown by the Bridgman method"

" Fluorescence, thermal and mechanical properties of PMMA-CdSe QD film " Journal Of Optoelectronics And Advanced Materials Vol. 19, No. 3 - 4, March – April 2017, p. 228 – 233

2010-2012 Metallurgy Technology Faculty, UNIVERSITY OF Belgrade:
MSc. (Hons.) Material Science and Engineering Department

I have passed seven courses with a degree; the courses included: Solid State Physics, Material Science, Selected Topics in Mathematical Analysis, Materials for Micro and Optoelectronic, Polymers in Electronics, Safety of equipment in process industry, and Materials in Electronic Engineering where I led a seminar connected with some topics about this subject.

Thesis Title: The Electron Transport in Silicon Carbide (SiC) - Influence of Anisotropy

Supervisor: Dr Rajko Sasic, full professor, University of Belgrade

Brief Synopsis of Research:

In the last ten years, microelectronic and nanoelectronic devices based on silicon have A few areas for improvement, and requirements placed upon them are more versatile. Therefore, it is rapidly working to improve the material properties which should in these devices replace silicon, and among the most serious candidates is silicon carbide. Thanks to the high thermal conductivity of the operation of such devices is reliably and at elevated temperatures, while due to the high value of the breakdown electric field the opportunity to work at much higher values of voltage and current, which opens the door for applications in power electronics, and in extreme conditions.

Reliable knowledge of transport parameters of each material, it is necessary to design appropriate microelectronic device. Silicon carbide is known as a material with pronounced anisotropy of transport characteristics. And which also was the subject of this research. In accordance with experimental data was modeled the effect of temperature, doping level and the electric field to the appropriate transport parameters whose degree of anisotropy to be evaluated.

These parameters are included in the existing analytical models, as well as two-dimensional simulations of the studied device, and the ultimate goal was to estimate the influence of the anisotropy of their current-voltage characteristic.

2006-2008 Secondary Basic Science

I was employed as a physics teacher for two years

2004-2005, Faculty of Education Janzour, THE UNIVERSITY OF Tripoli

BSc. (Hons.) Physics Department

Title of Project: The Resonance and its Application

Supervisor: Salah Abd-Alhadi Saleh, professor

Practical skills gained during my degree

Lab work was part of each year's modules and gave me the experience of work with others in my degree group, learning hands on in many cases, the properties of metal, magnetic fields, electric fields and the electromagnetic spectrum, most notably light. I learned how to carry out experiments with accuracy, analyze the results and draw conclusions. This gave me valuable experience in group presentation techniques, and to manage my time effectively. I learnt to work as part of a team, communicate ideas and difficult concepts effectively, writing a report and to work to deadlines.

I learnt new mathematical techniques in order to solve real-world physical problems, e.g. calculus in order to solve quantum mechanical, thermal and statistical problems.

Core Qualification

I am keen to begin a career in Material science and engineering, preferably in the physical Engineering where my creative initiative, ideas and a genuine enthusiasm would allow me to progress.

In achieving this, I have shown myself to be self-motivated, committed and determined in achieving my goals, come what may. I have also demonstrated negotiating and organizing skills, a firm sense of responsibility and my capacity to work hard under pressure. I possess excellent verbal and written communication skills and am able to relate to a wide range of people, as proven by my varied work experiences in experimental work field and teaching.