



Fig. 1. Samples of group pages on the Telegram platform

### Conclusion

The emergence of interactive Telegram bots in the promotion of educational services presents universities with an exciting opportunity to engage with prospective students in a dynamic and personalized manner. By leveraging the capabilities of this technology, universities can enhance their visibility, streamline communication, and provide a superior user experience. However, successful implementation requires careful planning, customization to meet specific needs, and continuous evaluation to ensure optimal performance. As universities strive to attract and retain the next generation of students, an interactive Telegram bot can be a powerful tool in their marketing arsenal.

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## PROPERTIES AND SYNTHESIS OF ZNO XEROXELS CONTAINING METAL NANO-COMPOSITES WITH DIFFERENT PHASE COMPOSITIONS [MINI-REVIEW]

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**Abstract:** Zinc oxide (ZnO) xerogels embedded with diverse metal nano-composites have been synthesized and investigated to analyse their structural and functional attributes. This mini review aims to explore the distinct phase compositions of the metal nano-composites within the ZnO matrix and examine their impact on the overall properties of the material. Employing advanced synthesis techniques and characterization methods, this mini review elucidates the relationship between the phase composition of the nano-composites and the resulting properties of the ZnO xerogels. The findings reveal notable variations in optical, electrical, and mechanical properties, contingent upon the specific metal and its phase within the composite. This mini review presents a comprehensive overview of the conducted research, emphasizing the innovative synthesis approach and the thorough analysis of the composites' performance in potential applications. These insights are crucial in tailoring ZnO-based materials for specific industrial uses.

**Key words:** Zinc oxide (ZnO) xerogels, nano-composites, ZnO matrix, optical, electrical, and mechanical properties.

### Introduction

The research focuses on the synthesis of zinc oxide (zinc oxide) is a promising material for industrial applications due to electron mobility, wide band gap, luminescence. The integration of

metal nan composites into zinc matrices to create Xeroxels also provides a new way to design properties to meet specific industrial needs. This study aims to address the lack of understanding regarding how different metal nan composites affect the phase compositions and properties of zinc xeroxylate, which is critical for applications in electronics, photonics and catalysis. Research objectives include synthesis of ZnO-xeroxels with diverse metal nan composites, evaluation of their effect on properties, and providing a framework for custom materials. Visual representations such as SIM images and XRD patterns will be used to illustrate structural and compositional changes for practical applications.

### **Results and discussion**

The analysis of the phase composition using X-ray diffraction showed various structures based on the metal embedded in zinc oxide, such as cubic for silver and Cubic and hexagonal for copper. As the properties of ZnO-xeroxels differ with metal-Nano-compounds, which affects the optical transparency, band gap, electrical conductivity. The uniform dispersion of metal nanoparticles in the zinc oxide matrix enhanced the mechanical strength by up to 20%, emphasizing the importance of controlled synthesis for specially designed applications [1-2].

Xeroxels ZnO is prepared with metal Nano-compounds showing enhanced conductivity and mechanical strength, especially with silver-copper alloys, aligning with the predictions of composite materials theory. Practical implications of the study include improved UV absorption and visible light response, making it promising for solar energy conversion and photocatalytic applications. Compared with conventional zinc oxide, metal-fused zinc xeroxels shows significant developments in electrical conductivity and thermal stability, which expands its functionality. The demonstrated sewing properties of materials through nanoscale phase control zinc Matrix offers a versatile approach to the development of next generation materials with specific functions [3].

### **Conclusion**

In [1] has demonstrated the significance of incorporating metal nano-composites into ZnO xeroxels and detailed the effects of varying phase compositions on material properties. so work has confirmed that the specific metals and their phases play a crucial role in defining both the physical and chemical attributes of the composites. Enhanced properties such as increased electrical conductivity, improved mechanical strength, and varied optical characteristics were observed depending on the composition and synthesis approach used. Incorporating diverse metals, such as silver, copper, and iron, in distinct phases within the ZnO matrix allowed for a broad exploration of potential applications ranging from optoelectronics to catalysis [2]. The relationship between the synthesis conditions and the resulting phase compositions provided a valuable insight, highlighting the importance of precise control over synthesis parameters to achieve desired properties. Future research should focus on fine-tuning the synthesis process to optimize the distribution and phase character of metals in the ZnO matrix. Additionally, exploring the long-term stability and environmental impact of these composites could open up even more practical applications. The findings presented have both theoretical significance in materials science and practical implications for technology development, suggesting that metal nano-composite embedded ZnO xeroxels are promising candidates for advanced material solutions in various industries...

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## **CHALLENGES FACING FOREIGN AGRICULTURAL INVESTMENT IN EGYPT'S PETROLEUM LAND SECTOR**

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**Abstract:** Foreign agricultural investment plays a crucial role in enhancing agricultural productivity, food security, and economic growth in many countries. Egypt, with its rich agricultural potential and strategic location, has attracted foreign investors seeking opportunities in its petroleum land sector. However, despite the potential benefits, there are several challenges that foreign agricultural investors face in Egypt's petroleum land sector. This article will shed light on some of the key challenges and their potential impact on foreign agricultural investment in this sector.

**Key words:** Investment, Egypt, agricultural sector, sustainable development.

### **Introduction**

Throughout Egypt's history, agriculture has undoubtedly had a significant economic impact. A major economic objective for attaining sustainable development, agriculture is thought to support the reduction of poverty, provide employment opportunities for the vast majority of workers, and provide job opportunities. It is also thought that this industry is the most significant in the economy of the country. Owing to the significance of foreign investment in developing nations, numerous nations—including Egypt—have amended their investment laws numerous times in an effort to foster an environment that will draw in foreign capital flows. Furthermore, if a nation's economic policies are able to provide an appropriate investment climate that fosters an environment that is favorable to both domestic and foreign investment, the multiplier effect brought about by foreign investment may be greater [1].

### **Results and discussion**

Egypt Investments is committed to promoting efficiency and sustainability in the agricultural sector, recognizing the numerous challenges it faces. Through a comprehensive review of various studies, it is crucial to analyse the main causes and challenges that affect foreign agricultural investment in this sector.

One of the primary challenges facing foreign agricultural investment in Egypt's petroleum land sector is the complex and often restrictive land access and ownership policies. The process of acquiring land can be lengthy, bureaucratic, and subject to changing regulations. Foreign investors may face difficulties in securing suitable land for agricultural projects, hindering their ability to establish and expand operations.

Insufficient infrastructure and logistics pose significant challenges for foreign agricultural investors in Egypt. In some petroleum land areas, the infrastructure required for successful agricultural operations, such as irrigation systems, transportation networks, and storage facilities, may be inadequate or absent. This lack of infrastructure can increase costs, reduce efficiency, and limit the profitability of foreign investment projects.

Egypt's agricultural sector heavily relies on irrigation systems, particularly in the desert regions where petroleum land is located. Water scarcity and inefficient irrigation practices present major challenges for foreign agricultural investors. Limited water resources, coupled with outdated irrigation techniques, can lead to suboptimal crop yields and increased production costs.

Foreign investors often encounter challenges related to Egypt's regulatory environment and legal framework. Frequent policy changes, inconsistent enforcement, and unclear regulations create uncertainty for investors. The lack of transparency and predictability can discourage foreign agricultural investment and undermine long-term planning and sustainability.

Political and economic stability is crucial for attracting foreign agricultural investment. Any