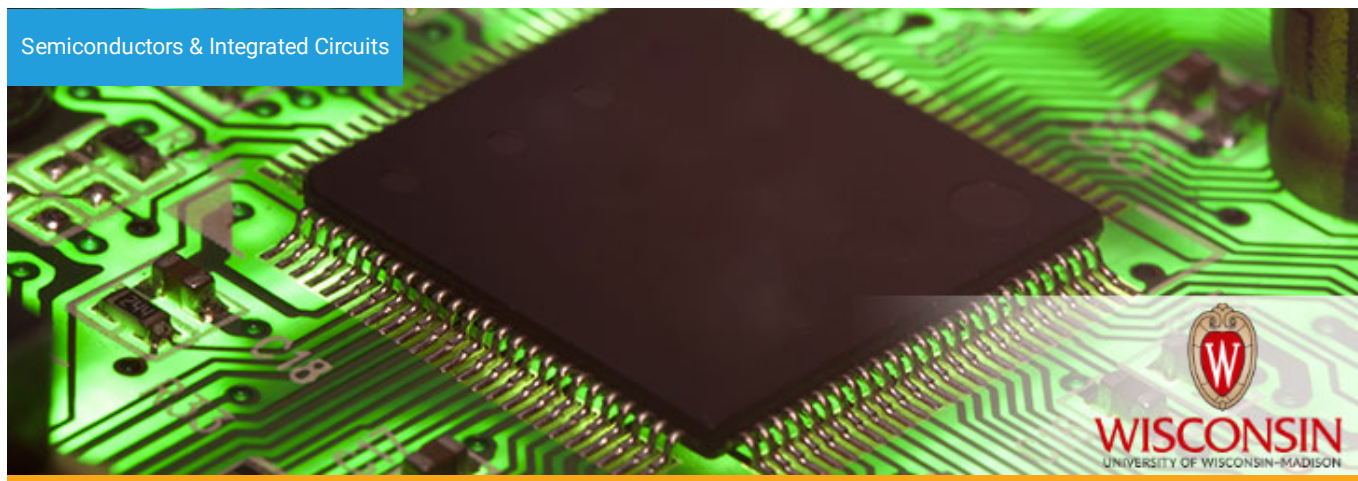




Method for the Synthesis of a Zinc Oxide Graphene Composite Material

WiSys: T190028US02

Inventors: Seth King, Daniel Little

WiSys is seeking a strategic partner interested in providing a route to market for the commercialization and use of this method for the synthesis of a zinc oxide graphene composite material. There is also interest in identifying an industry partner for the continued testing and commercialization of the ZnO/graphene thin-films developed from this method.

Overview

Zinc oxide graphene composite materials have significant interest commercially as they have been demonstrated effective for use in sensors and capacitors. They can act as transparent conductive thin-films and can possess photocatalytic activity. Furthermore, the non-toxic and low-cost features of these composite materials increase their desirability for use in these applications and more. Synthesis of zinc oxide graphene composite materials has occurred via a range of experimental methods. Some methods have used electrodeposition and others have focused on solution-based synthesis that involved pH manipulation of a zinc ion precursor. The most common methods of synthesis include either solvothermal or sol-gel techniques. However, these more commonly used methods are not without their own drawbacks. These methods can require expensive precursor compounds, use harsh reactants, require skilled methodology, and can ultimately still result in final products that contain impurities. A truly safe, inexpensive, and simple method is needed for the synthesis of a high purity zinc oxide graphene composite material.

The Invention

Researchers at the University of Wisconsin – La Crosse have developed a method for the synthesis of a zinc oxide graphene composite material that is in fact simple, safe, and of low-cost. Through thermal decomposition of zinc oxalate in a homogeneous solid-state solution with graphene, the resulting material is a zinc oxide graphene hybrid that demonstrates high stability and the potential for use in commercially relevant applications. The researchers have already successfully fabricated thin-films from the composite material and experiments are ongoing to explore the structural, optical, and electrical properties of these films. Additionally, experiments are underway to explore the antibacterial and antiviral activity of these thin-films for use in high touch surfaces and food packaging.

Applications

- Low-cost materials used during synthesis
- Safely designed so no harsh chemicals or solvents are required during synthesis
- No requirement of high-cost specialized equipment
- Ratio of ZnO to graphene can be adjusted in this method of synthesis
- Composite material can be fabricated into thin-films

Key Benefits

A method has been developed for the synthesis of a zinc oxide graphene composite material that is simple, safe, and of low-cost. This

composite material has been fabricated into thin-films. Testing of the composite material and the thin-films is ongoing.

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

Tech Fields

- [Materials & Chemicals : Other materials & chemicals](#)

OK



WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850

- [Semiconductors & Integrated Circuits : Components & materials](#)

For current licensing status, please contact Allee Marti at amarti@wisys.org or 608-316-4037

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK



WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850