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# **Technological Applications of Nano-Hybrid Composites**

**Virat Khanna, Prianka Sharma, and Priyanka Mahajan**

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# Technological Applications of Nano- Hybrid Composites

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# Chapter 3

## Hybrid Nanomaterials: A Sustainable Tool to Detect Environmental Problems

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### **ABSTRACT**

*Hybrid nanomaterials, a novel class formed by integrating organic and inorganic components at the nanoscale, have gained attention in nanotechnology and materials science. This synergy creates structures with enhanced functionalities. In environmental detection, they play a crucial role due to their sustainable and cutting-edge attributes. This chapter examines their pivotal role in addressing environmental issues, leveraging diverse nanomaterial properties. With tunable properties, high surface area, and sensitivity, hybrid nanomaterials are ideal for sensing environmental parameters. Their sustainability aligns with the global push for eco-friendly solutions, extending to applications in renewable energy and waste reduction. The chapter explores synthesis methods, sensor design intricacies, and applications, highlighting their potential to revolutionize environmental monitoring and contribute to a sustainable future through advancements in detection technologies.*

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