

# Carbon Nanotube Forests as Ion Guides

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## Executive Statement:

This technology offers a novel method for channeling beams of highly energetic ions using carbon nanotube forests.

## Technology Overview:

The invention from Brigham Young University utilizes carbon nanotube (CNT) forests as ion guides to direct energetic ion beams to specific destinations. By spindling CNT forests together, a 'wire' is created that can guide ions efficiently. This breakthrough has significant implications for instruments that leverage energetic ions, offering a new approach to ion beam manipulation and control.

## Key Advantages:

- Enhanced precision in guiding energetic ions to specific locations
- Improved efficiency over existing ion guide technologies
- Potential for miniaturization of ion-based instruments
- Offers a novel application for carbon nanotube technology

## Problems Addressed:

- Limitations in controlling the direction and destination of energetic ion beams in current technologies
- Challenges in achieving high precision and efficiency in ion beam manipulation
- Difficulties in miniaturizing ion-based instrumentation due to bulky current guiding mechanisms

## Market Applications:

- Scientific instrumentation involving energetic ion beams
- Material science research, particularly in material characterization and modification
- Nanotechnology applications requiring precise ion implantation
- Development of advanced microfabricated devices, including thin layer chromatography plates