Nanotechnology has brought about innovations in its methodologies and process in energy harnessing and transportation. In recent years nanotechnology has received considerable attention in various applications because of its different physical and chemical properties, such as size distribution, nano-size range, and surface to volume ratio. All these unique characteristics have led to the implementation of nanotechnology, mainly in energy harvesting and transportation applications. The performance of many energy harvesting devices with thermophotovoltaic, ferroelectric, piezoelectric, and magneto-mechanical properties is improved using nanomaterials' strength. The role of light and photon scattering accompanied by quantum effects such as ballistic transport of charge carriers and tunneling has precisely controlled the energy harvesting architecture of nanostructures and materials. Other than that nanotechnology in vehicles can enhance durability and safety.

With their novel functionalities, Nanotechnologies can improve vehicle performance through tools and methods for controlling and modifying the structure of materials. Within the transportation industry, coatings for vehicles using nano materials occupy a significant part. With that scratch-resistant paint, nanofluids and lightweight nanomaterials help achieve intelligent high speed in cars. Too, nanomaterials usage like nano filters and nano carbon black for tires improves fuel consumption reduction and engine performance enchantment. It also enhances fracture toughness, breaking strength, hardness, and super elasticity at a higher temperature, extending the durability of lubrication systems, machines, and lightweight materials. Nano electrical-enabled communication systems and sensors in transportation can improve the safety of vehicles to a great extent. Likewise, nanotechnology in the energy sector includes harvesting solar energy, which enables the processing capacity of photocatalysts for the generation of power. The utilization of nano catalyst in biofuel production can aid its durability. Thermal energy transport with nanofluids and superconducting cells is an essential advancement in energy generation. Nanotechnology is used for steam generation and energy storage with supercapacitors and
nanocomposites. Thus, higher utilization of nanotechnology in energy harvesting devices and transportation systems can improve the potential capacity and efficiency.

However, the potential issue with nanotechnology applications is toxicity that can threaten the environment and living organisms. So, developing a systematic management system through effective strategies and regulatory measures can implement the usage of eco-friendly nanomaterial. This special issue invites researchers to submit their work focusing on the advances in nanotechnology for the energy harvesting and transportation field.

The topics of interest for the special issue include, but not limited to, the following:

- Application of quantum structures and nanomaterials for energy harvesting applications.
- Role of nanotechnology in improving the energy harvesting capacity of piezoelectric materials.
- Improved transportation systems with advanced nanostructures.
- A comprehensive framework on nanomaterial for energy harvesting and transportation systems.
- Nanotechnology devices, materials, and applications in energy harvesting and transportation.
- Adaptive development of thermos electric devices with nanomaterials.
- Enhancing transportation mechanics and strength using nanomaterials.
- Nano technology-based photodetectors for energy harvesting.
- Improving energy harvesting capacity in photovoltaic cells with nanomaterials.
- Enhancing sustainability in transportation systems using nanotechnology

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