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Towards Sustainable Energy Solutions: A Comprehensive Analysis of Piezoelectric Sensors for Power Generation

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Abstract: *This research review paper comprehensively analyzes electric power generation using piezoelectric sensors. Piezoelectric materials, with their ability to convert mechanical energy into electrical energy, have emerged as promising candidates for energy harvesting applications. Through an extensive literature review, this paper examines various studies exploring the principles, advancements, challenges, and applications of piezoelectric-based energy generation. The review encompasses theoretical frameworks, experimental methodologies, and computational models employed in the field. Key findings from the literature are synthesized to identify trends, gaps, and opportunities for further research. The abstract highlights the significance of piezoelectric energy harvesting in the context of sustainable energy solutions and outlines potential directions for future investigation.*

Keywords: Piezoelectric sensors, electric power generation, energy harvesting, sustainable energy solutions, energy harvesting

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