# Graphene Insulated Nanosatellite

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The graphene insulated nanosatellite (GIN) is a cube satellite that uses graphene on silicon carbide as a superior material of insulation aimed at elevating its performance and endurance in space missions. Firstly, graphite powder and silicon carbide sheets, placed in a 25ml crucible, underwent a process of adhesion in a ball mill machine to produce sheets of graphene on silicon carbide. The conditions and settings (speed and time interval) of the ball mill machine were accurately monitored to ensure optimum results as well as to prevent the machine from overheating. These produced sheets were then used to insulate a 1U CubeSat. The resulting CubeSat underwent multiple testing in a thermal vacuum chamber in order to compare its thermal resistance with that of the standard multilayer insulated CubeSat used in the space industry. The results indicated that the graphene on silicon carbide is indeed superior as it proved to prolongate the CubeSat's lifespan to double that of a standard CubeSat. This is by virtue of graphene and silicon carbide's outstanding abilities to operate at extreme temperatures, endure harsh space conditions, and resist degradation. The GIN has evidently confirmed to be a competent CubeSat that will most definitely revolutionize the future of space exploration missions and the satellite and space industry.
Keywords: Nanosatellite, CubeSat, Graphene, and Silicon carbide

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