Short Communication Journal of Lasers, Optics & Photonics 2020
Vol.7 No.3

# Modern Physics & Nuclear Physics 2019: The quantum future of body armors - Michael D Norton - University of York

**Michael D Norton**
University of York, UK

The quantum future of body armors, it is a presentation addressing the limitations of body armor used by military, police forces and civilians in America as well as the developing future of pushing beyond the bounds of those limitations with quantum physics. Supporting literature was collected from a variety of sources including PubMed. Problems addressed are the weight of the armor, breathability and the body type of the wearer. Ballistic analyses pertaining to different types of polymers as well as armor's lack of ability to self-repair and heal the wearer. Solutions explored are lightening the weight of the armor, increasing its breathability, biometric ownership of the armor for national security purposes, innovated polymers reversed-engineered from the quantum level and Nano machine technology for the material's ability to self-repair and heal some wounds of the user. Obstacles preventing the innovation of such solutions are explored such as limitations of nanotechnology based on the laws of thermodynamics as well as economical inhibitions connected to the cost of production.

The quantum eventual fate of body shields, it is an introduction tending to the restrictions of body protection utilized by both military, police powers and regular folks in America just as the creating fate of pushing past the limits of those confinements with quantum material science. Supporting writing was gathered from an assortment of sources including PubMed. Issues tended to are the heaviness of the protection, breathability and the body sort of the wearer. Ballistic investigations relating to various kinds of polymers just as protective layer's absence of capacity to self-fix and recuperate the wearer. Arrangements investigated are helping the heaviness of the protective layer, expanding its breathability, biometric responsibility for reinforcement for national security purposes, advanced polymers switched designed from the quantum level and Nano machine innovation for the material's capacity to self-fix and recuperate a few injuries of the client.

Impediments forestalling the advancement of such arrangements are investigated, for example, constraints of nanotechnology dependent on the laws of thermodynamics just as practical hindrances associated with the expense of creation.
As per antiquated legend, Genghis Khan trained his horsemen to wear silk vests underneath their defensive layer to all the more likely secure themselves against a surge of bolts during fight. Since the hour of Khan, body defensive layer has fundamentally advanced-silk has offered approach to ultra-hard materials that demonstration like invulnerable dividers against most ammo. Be that as it may, even this defensive layer can fall flat, especially in the event that it is hit by rapid ammo or other quick moving items. "For as long as 12 years, scientists have been searching for approaches to decrease the harm brought about by the effect of rapid shots on reinforcement made with boron carbide," said Dr. Kelvin Xie, collaborator educator in the Department of Materials Science and Engineering. "Our work at long last tends to this neglected need and is a stage forward in planning unrivalled body protective layer that will shield against considerably progressively incredible guns during battle." Boron carbide, named "dark jewel," is a man-made material, which positions second beneath another manufactured material called cubic boron nitride for hardness. In contrast to cubic boron nitride, be that as it may, boron carbide is simpler to deliver for a huge scope. Likewise, boron carbide is more diligently and lighter than other reinforcement materials like silicon carbide, settling on it a perfect decision for defensive rigging, especially ballistic vests.

Notwithstanding boron carbide's numerous attractive characteristics, its primary deficiency is that it can harm rapidly upon high-speed sway. "Boron carbide is great at halting slugs going under 900 meters for every second, thus it can square shots from most handguns successfully," said Xie. "Yet, over this basic speed, boron carbide unexpectedly loses its ballistic exhibition and isn't as compelling." Scientists realize fast shocks influence boron carbide to have stage changes—a wonder where a material changes its inside structure with the end goal that it is in at least two physical states, similar to fluid and strong, simultaneously.

The shot's effect in this manner changes over boron carbide from a crystalline state where particles are deliberately requested to a glass-like state where molecules are randomly orchestrated. This glass-like state debilitates the material's trustworthiness at the site of contact between the projectile and boron carbide. Past work utilizing PC re-enactments anticipated that including a little amount of another component, for example, silicon, could make boron carbide less fragile. Xie and his gathering explored if including a small amount of silicon likewise diminished stage change.