Laser Shielding Odyssey: A Novel Method for Confining Matter Transported at Relativistic Velocities in Vacuum by a Laser-Tube, Which May Solve a Problem of Stephen Hawking's "Star-Shot" Initiative

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Technology has given us advantages to improve our life’s quality; it brought a lot of changes to our life. Scientists plan to colonize the moon and planets, to expand the humankind in space. However, launching materials from Earth is expensive, which is a limiting factor in space endeavors. To settle space, a way to avoid millions of launches from Earth is required. This research aims at presenting a novel method for shielding matter using laser-tubes, and calculations demonstrating the possibility of sending ionized matter at relativistic speeds over long distances in vacuum through a laser-tube serving as a guiding shield. Resources in outer-space, both in materials and energy are enormous. Furthermore, Earth is running out of raw materials. Due to that, it has become a must to transport fuel to space missions, oxygen to space colonies, materials necessary for a better life on Earth from outer-space using the laser shielding method. Furthermore, Yuri Milner, Stephen Hawking and Mark Zuckerberg announced a plan to send tiny probes to Alpha Centauri using a laser of 100 Gigawatts to accelerate them to 20% the light speed. They allocated $100 million that will be spent on research the next years to get current technology scaled to the level required to complete this interstellar mission. For example, the slightest deviation for the probe from the beam can cause this probe to be off the designated course completely. So, I recommend the laser-tube shield to be used in Milner's initiative to confine the probes through the path and avoid their loss.

Awards Won:
NASA: Second Award of $750