

Title: Investigating Isotopic Extraction of He-3 from Solar Wind Embedded Lunar Regolith
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Helium-3 (He-3) is a vital component in the most efficient form of fusion and has the potential to produce massive quantities of clean energy. However, naturally occurring He-3 is incredibly scarce on Earth, only composing of 1.37 parts per million of He a. Currently, Nuclear Transmutation is not a viable option for the creation of He-3 so, in order to create more, we must look to other places for these isotopes, specifically the Moon. The Moon, lacking an atmosphere, is only partially shielded from solar wind, and large quantities of He-3 are embedded into the Lunar regolith. Data from Apollo-era samples of the regolith indicate that the minimum concentration is approximately 20 parts per billion, which makes the Moon a viable source of He-3b. Satellite data from NASA's Lunar Prospector Mission indicated that Mare Tranquillitatis, a region on the moon, has one of the highest concentrations of He-3. The Lunar Regolith also provides access to elements such as iron, hydrogen, and oxygen. The goal of this research project is to examine and investigate feasible projects that can extract He-3 from the lunar regolith.

Works Cited

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