What are the ion sputtering processes for photovoltaic panels

Overview

At its core, ion sputtering is a physical vapor deposition (PVD) technique that uses high-energy ions to knock atoms off a source material, known as a target. These dislodged atoms then travel through a vacuum and deposit onto a substrate, forming an ultra-thin, highly uniform. This issue, known as ?

sputter damage', presents challenges in multiple solar cell structures, including a-Si:H-based SHJ solar cells, polycrystalline silicon (poly-Si)-based solar cells, and nc-SiC:H-based TPC solar cells. [2 - 6] The origin of sputter damage remains unclear due to the multitude of. Sputtering is a widely used technique in the fabrication of thin films, particularly in the photovoltaic industry. It involves the ejection of atoms or molecules from a target material due to bombardment by high-energy particles, typically ions. It offers unique advantages over its sibling processes, such as magnetron sputtering, ion plating, evaporation, and pulsed laser deposition.

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Sputtering in Photovoltaic Materials

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