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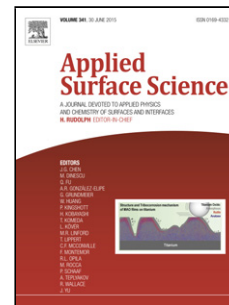
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# Scattering of Low-Energetic Atoms and Molecules from a Boron-doped CVD Diamond Surface

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No color for any figures in print

## Highlights

- 1) B-doped synthetic diamond surface successfully tested for space application.
- 2) Angular scatter of low-energy H and O ions is less than that of other synthetic diamond samples.
- 3) Boron-doping allowed preventing electrostatic charging of synthetic diamond material.

## Abstract

For the detection of low energetic neutral atoms for the remote sensing of space plasmas, charge state conversion surfaces are used to ionize the neutrals for their subsequent measurement. We investigated a boron-doped Chemical Vapor Deposition (CVD) diamond sample for its suitability to serve as a conversion surface on future space missions, such as NASA's Interstellar Mapping and Acceleration Probe.

For H and O atoms incident on conversion surface with energies ranging from 195 to 1000 eV and impact angles from 6° to 15° we measured the angular scattering distributions and the ionization yields. Atomic force microscope and laser ablation ionization mass spectrometry analyses were applied to further characterize the sample. Based on a figure-of-merit, which included the ionization yield and angular scatter distribution, the B-doped CVD surface was compared to other, previously

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