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Simulations of cross media showers with CORSIKA 8 (poster)

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The CORSIKA 8 project aims to develop a versatile and modern framework for particle shower simulations that meets the new needs of experiments and addresses the caveats of existing codes. Of particular relevance is the ability to compute particle showers that pass through two or more different media, of varying density, in a single run within a single code. CORSIKA 8 achieves this flexibility by using a volume tree that specifies volume containment, allowing one to quickly query to which medium a point belongs. Thanks to this design we are able to construct very specific environments with different geometries and media. As an example, we demonstrate this new functionality by running particle showers penetrating from air into Antarctic ice and validating them with a combination of the well-established CORSIKA 7 and Geant 4 codes.

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