Cosmic Rays Fluka

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Cosmic Rays Fluka

The Galactic Cosmic Ray (GCR) component of the cosmic ray flux can be simulated up to 30 TeV/nucleon (or 500 TeV/n when DPMJET is linked) The following general options are available concerning the simulation of cosmic ray interactions in FLUKA:

Cosmic Rays - The official FLUKA site: FLUKA home

Cosmic ray calculations can be done with FLUKA using the input commands GCR-SPE (for initialisation purposes) and SPECSOUR. In addition, several auxiliary stand-alone programs need to be used to prepare the geometry and material cards to be inserted into the input file. Command SPECSOUR does not define only cosmic ray sources, but also a number of other pre-defined complex sources that cannot be described by the simple keywords BEAM, BEAMPOSit, BEAMAXES and HI-PROPErt.

FLUKA: 16} Special source: cosmic rays

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The official FLUKA site: FLUKA Online Manual

FLUKA is a multipurpose Monte Carlo code, which can transport particles over a wide range of energies in user-defined geometries. Here we present a new FLUKA library, which allows the interaction and propagation of high energy cosmic rays in the Earth atmosphere and the transport of high energy muons in underground/underwater environments

FLUKA as a new high energy cosmic ray generator - INSPIRE

An asteroid called Kaidun fell on

December 3, 1980, in Yemen (15° 0′N, 48° 18′E). Investigations on this large-sized meteorite are ongoing today. In this paper, interactions between cosmic rays-earth atmosphere and cosmic rays-Kaidun meteorite were modeled using a cosmic ray generator FLUKA Monte Carlo code.

FLUKA Monte Carlo Simulations about Cosmic Rays ...

FLUKA is a multipurpose Monte Carlo code, which can transport particles over a wide range of energies in user-defined geometries. Here we present a new FLUKA library, which allows the interaction and propagation of high energy cosmic rays in the Earth atmosphere and the transport of high energy muons in underground/underwater environments.

FLUKA as a new high energy cosmic ray generator ...

Dear Experts, I want to calculate galactic cosmic ray fluence and dose equivalent

due to different particles for a certain altitude latitude and solar activity. As the manual is quite brief, I am not able to construct proper geometry with inputs like longitude, latitude, layers of air, and densities. The input card of the geomagnetic field is also not clear to me. Can anybody please help me ...

Cosmic rays simulations - Geometry and Materials - FLUKA ...

can be de ned using suitable cards [,]. In , FLUKA MonteCarlocodewaspresented asanewhigh-energycosmic ray generator. With this new release, FLUKA is able to simulate interactions between high-energy cosmic rays and Earth s atmosphere. In this code using the combinational

Research Article FLUKA Monte Carlo Simulations about ...

0} What is FLUKA? 1} A quick look at FLUKA's physics, structure and capabilities 2} A FLUKA beginner's guide 3} Installation 4} FLUKA modules

(Fortran files) 5} Particle and material codes 6} General features of FLUKA input 7} Description of FLUKA input options 8} Combinatorial Geometry 9} Output 10} Low-energy neutrons in FLUKA 11} Collision tape 12} Generating and propagating optical photons ...

FLUKA: Index fluka2020

The flux of incoming cosmic rays at the upper atmosphere is dependent on the solar wind, the Earth's magnetic field, and the energy of the cosmic rays. At distances of ≈94 AU from the Sun, the solar wind undergoes a transition, called the termination shock, from supersonic to subsonic speeds.

Cosmic ray - Wikipedia

The Galactic Cosmic Ray (GCR) component of the cosmic ray flux can be simulated up to 30 TeV/nucleon (or 1000 TeV/n when DPMJET is linked) The following general options are available concerning the simulation of cosmic ray interactions in FLUKA, wrt ion

interactions:

Cosmic Rays - Indico

The interactions of cosmic rays with the solar atmosphere produce secondary particles which can reach the Earth. In this work, we present a comprehensive calculation of the yields of secondary particles such as gamma-rays, electrons, positrons, neutrons, and neutrinos performed with the uc(fluka) code.

Cosmic-ray interactions with the Sun using the uc(fluka ...

Monte-Carlo package extended by FLUKA package to simulate the low-energy nuclear interactions below 30 km (Velinov & Mishev 2007, 2008a, 2008b; Mishev & Velinov 2007, 2008). 2. The Oulu CRAC (Cosmic Ray Atmospheric Cascade) model is based on the CORSIKA/FLUKA Monte-Carlo simulations and explicitly accounting for direct ionization

Impact of cosmic rays and solar

energetic particles on the ...

FLUKA can simulate, with high accuracy, the interaction and propagation of about 60 different particles in matter, including photons and electrons from 1 keV to thousands of TeV, neutrinos, muons of any energy, hadrons of energies up to 20 TeV (up to 10 PeV by linking FLUKA with the DPMJET code) and all the corresponding antiparticles, neutrons down to thermal energies and heavy ions.

FLUKA | Knowledge Transfer

interactions between several cosmic rays species of projectiles and different target nuclei of the interstellar medium. The yields of secondary particles have been calculated with the FLUKA simulation package, that provides with very good accuracy the energy distributions of secondary products in a large energy range.

Hadronic interactions of primary cosmic rays with the ...

and the modulation of the cosmic rays flux has been studied by monitoring the flux of atmospheric neutrons. A flux of low energy neutrons is produced in the interaction of primary CRs with the atmosphere and it is mostly due to low energy primaries (1-20 GeV), due to the rapid fall of

Cosmic Rays - Agenda (Indico)

The FLUKA computer code contains many variance reduction algorithms and covers all particles of interest for space radiation research. For most applications, the FLUKA package requires no additional programming.

Comparison of the transport codes HZETRN, HETC and FLUKA ...

FLUKA is a general purpose Monte Carlo transport and interaction code used for fundamental physics and for a wide range of applications. These include cosmic ray physics (muons, neutrinos, extensive air showers, underground physics), both for basic research and

applied studies in space and atmospheric flight dosimetry and radiation damage.

Hadronic models for cosmic ray physics: the FLUKA code ...

FLUKA is a fully integrated particle physics Monte Carlo simulation package. It has many applications in high energy experimental physics and engineering, shielding, detector and telescope design, cosmic ray studies, dosimetry, medical physics and radio-biology.

FLUKA – NMMItools

The measured fluxes of secondary particles produced by the interactions of cosmic rays with the astronomical environment represent a powerful tool to infer some properties of primary cosmic rays. In this work we investigate the production of secondary particles in inelastic hadronic interactions between several cosmic rays species of projectiles and different target nuclei of the interstellar medium.