**URANOS**

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modeling cosmic-ray neutrons

- simple user interface
- computationally efficient
- new geometry concept of layers and voxels

**The User Interface**

URANOS is freely available from the websites of the Physikalisches Institut Heidelberg and the UFZ Leipzig.

**Sources**

- PulS Cosmic Neutron source

**Cross Sections**

- Cross sections and weighted cross sections
- JENDL/HE

**Neat Examples**

- Extremely heterogeneous snow cover at the Konvental glacier (Alps)
- Drip irrigation in Valencia (Spain)

**Layer and voxel geometry**

- The geometry is organized in layers. This allows to easily build up a stack of homogeneous subdomains with user pre-defined layer properties and height of each layer. Each layer further may be subdivided by homogeneous sub-domain voxels.

**Simulation**

- URANOS modeling process, exemplarily for a neutron density in an urban environment:
  1. Creation of a computational mesh (VLP-technology)
  2. Creation of a 3D-model (grayscale)
  3. Generation of subdomains (layerwise, transversal, voxel)
  4. Construction and input of the neutron density

**Footprint characteristics**

- Field-scale soil moisture monitoring with cosmic-ray neutrons

**Export options and configurations of the live output**

- Footprint characteristics involved in soil moisture monitoring and soil properties determination (left)
- Footprint characteristics involved in soil moisture monitoring and soil properties determination (right)

**Measurement**

- Measurement of the neutron density for Americium-241, ²³⁵U

**End**

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