

Review of underground laboratories: science and technology.

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Underground laboratories are multidisciplinary research infrastructures with a rock overburden of the order of 1000 meter-water-equivalent.

A number of these infrastructures (15) are at work in the north hemisphere and three new ones are underway, two in the south hemisphere.

A description of the main characteristics of the existing facilities is given.

Due to the significant cosmic ray flux reduction a number of rare events processes can be searched for in underground laboratories, in particular neutrino interactions, neutrinoless double beta decay, and dark matter. Yet, these infrastructures offer a unique opportunity to search also for rare geophysics phenomena, such as weak oscillations from the Earth's core, and in the next future for gravitational waves. A summary of the main physics case in underground laboratories is reported.

Underground laboratories can play a crucial role to drive new technologies. A few selected examples of technologies developed in the framework of underground laboratories are discussed.

Recently, the need of sharing work load and develop synergy between underground laboratories has been growing. A couple of examples are reported.

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