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## **Radio propagation environment analysis for neutrino radio detection in salt mines**

Neutrinos cannot be directly detected, but they can be indirectly observed through their interactions with ordinary matter in which secondary particles are created. A neutrino detector is a complex system in which the electromagnetic field from secondaries is measured, in a huge volume instrumented with antennas. From the characteristics of the field one can derive the properties of the initial neutrino.

“DETection of COSmic rays using new technologies”(DETCOS) is a Romanian national project that investigates the possibility of constructing a radio Askaryan neutrino observatory in a Romanian salt mine. We consider a detection strategy based on coherent radio Cherenkov emission from neutrino-induced showers produced in current charged interactions.

Many aspects are considered, such as: the effect that the dielectric medium has on the amplitude of radio signal; how the pulse couples to a realistic receiver; behavior of the key instrument –i.e. the radio antenna; the signal-to-noise ratio (SNR). Another critical aspect to be taken into consideration is the random triggering rate. The detailed detector description, optimization and expected performance will be also presented.

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