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Yemilab - Korea's new underground laboratory

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Yemilab is a new underground research facility in Korea, located 1,000 meters below ground within an active iron mine. The laboratory includes two large cavities for large-scale experiments and about 3,000 square meters of tunnel-based laboratory space. Access to the lab is provided by a rampway, which can accommodate large trucks, and a 600-meter vertical elevator shaft. At the base of these access points, a 700-meter-long tunnel leads to the main laboratory area.

The primary scientific programs at Yemilab focus on dark matter searches and neutrinoless double beta decay experiments. The COSINE experiments, which use updated NaI(Tl) crystals, will follow the COSINE-100 experiment conducted at Y2L. The AMoRE experiment, which uses lithium molybdate crystals coupled with low-temperature calorimetric sensors, searches for the neutrinoless double beta decay of Mo-100 isotopes. The first phase of AMoRE-II is scheduled to begin in 2025.

Other research programs at Yemilab include low-mass dark matter experiments, rare beta decay searches, and the development of ultra-low background environmental techniques. In addition to these flagship experiments, the facility also supports interdisciplinary research with several applications in other fields.

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