

Possibilities for Underground Physics in the Pyhäsalmi Mine

W.H. Trzaska (wladyslaw.h.trzaska@jyu.fi)
Department of Physics, University of Jyväskylä, Finland

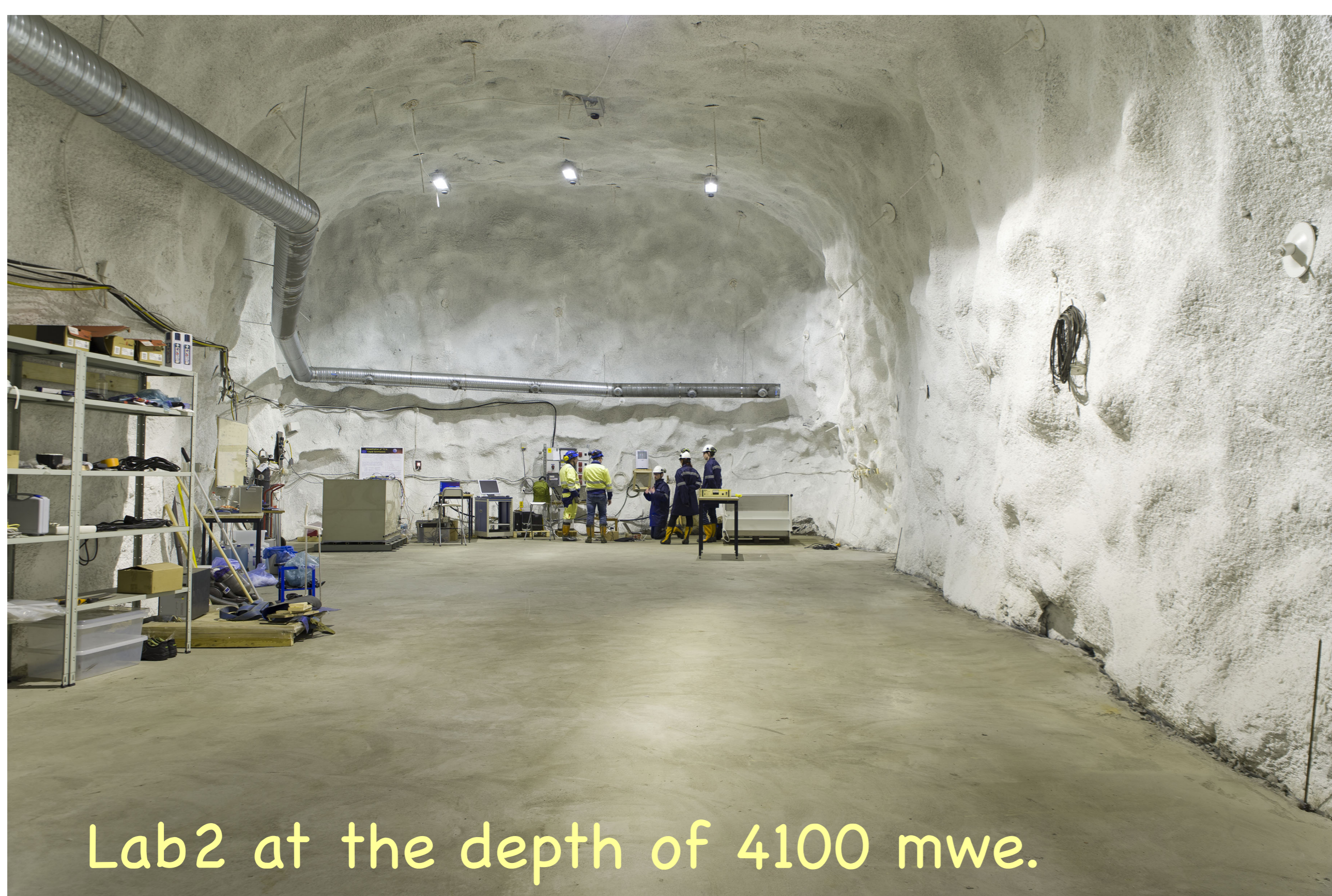
The underground mining in the Pyhäsalmi mine, Finland, is ending in fall 2019. The infrastructure of the mine is in excellent condition, including

- 1400-metre deep elevator shaft,
- 11-km truck-size declined tunnel,
- large underground storage and service halls,
- offices and restaurant, and
- modern communication services.

The infrastructure and the flat overburden of **4100 mwe** offers good possibilities for physics experiments requiring shielding from cosmic muons.

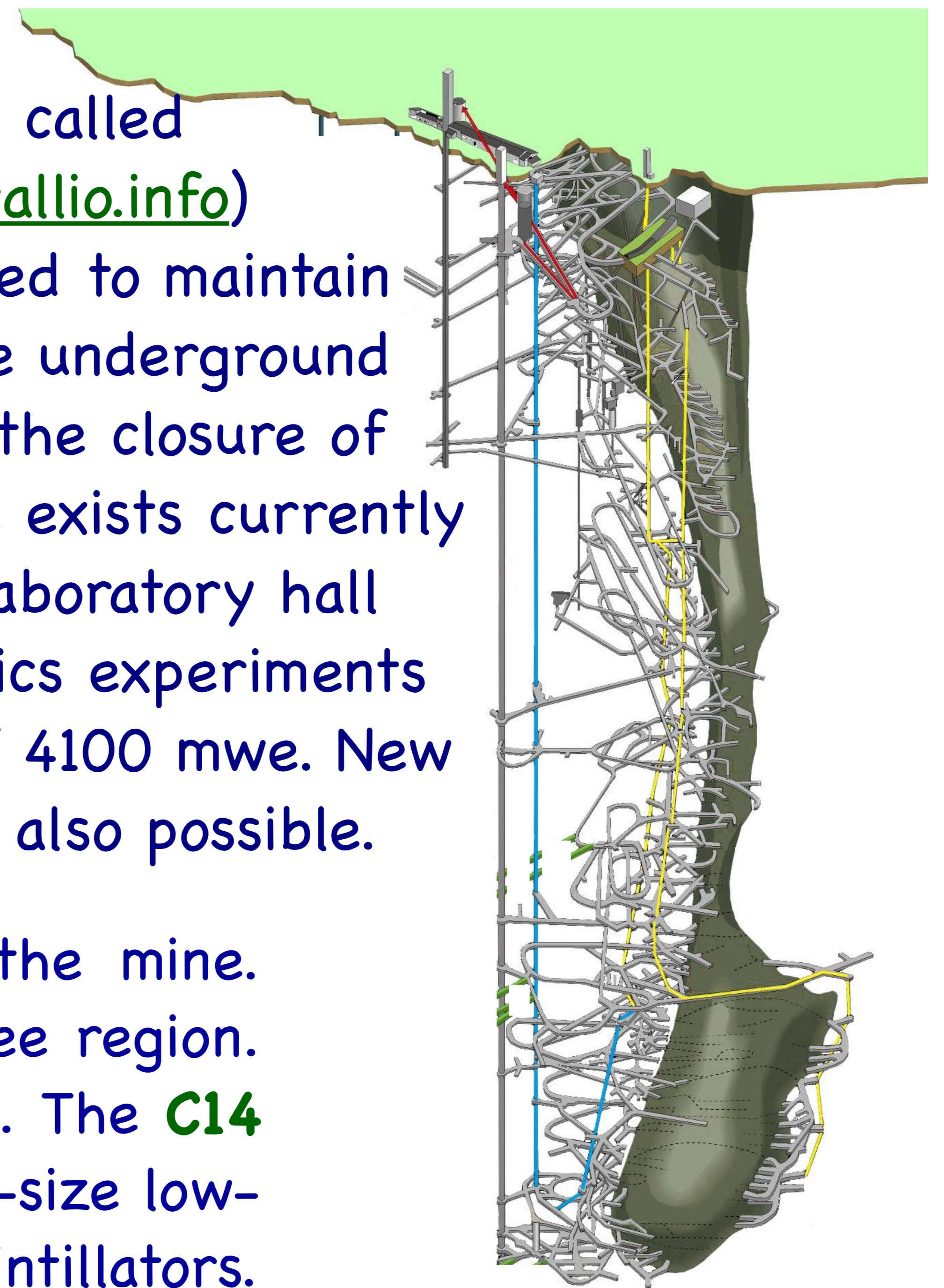


A service hall at the depth of 1410 m.



Lab2 at the depth of 4100 mwe.

An organization called **Callio** (<https://callio.info>) has been founded to maintain and operate the underground premises after the closure of the mine. There exists currently one dedicated laboratory hall (Lab2) for physics experiments at the depth of 4100 mwe. New excavations are also possible.



Currently there are two physics experiments running in the mine. **EMMA** is studying the composition of cosmic rays at the knee region. The array of 11 stations is situated at the depth of 75 m. The **C14** experiment situates in the laboratory hall Lab2. It is a small-size low-background setup to map the concentration of ^{14}C in liquid scintillators.



EMMA experiment.



C14 experiment at Lab2.