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WIMP dark matter searches with NaI: Status of the SABRE experiment and SUPL laboratory

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For almost 20 years, the DAMA experiment has observed annual modulations in the signal from heavily-shielded, ultra-pure NaI scintillator crystals housed in the Gran Sasso underground laboratory. This modulation is consistent with expectations for the motion of the earth through a galactic dark matter halo, but is in conflict with results from other dark matter direct detection experiments. Recent efforts with NaI-based detectors that aim to test the DAMA result will be reviewed, with a focus on the new SABRE experiment under construction that will be the first based in both the North and South Hemispheres and hence able to separate a potential dark-matter-induced modulation signal from any seasonal-induced background. The SABRE South experiment will be housed in the Stawell Underground Physics Laboratory (SUPL) in Australia; this will be the first deep-underground, low-background laboratory in the Southern Hemisphere and its progress will also be be presented.

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