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The MEG experiment: status and upgrade.

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Lepton flavour violation (LFV) is currently one of the most exciting branches of particle physics. The flavour violating process of the neutrinoless decay of a positive muon to a positron and a gamma is strongly suppressed in the Standard Model, hence it is a very sensitive probe of new physics beyond the Standard Model. The MEG experiment searches for this process at the Paul Scherrer Institute (PSI), in Switzerland, which provides the most intense continuous muon beams in the world. The current limit on the branching ratio of <5.7x10-13 (90% CL) is based on our data collected between 2009-2011. It is 20 times more stringent than the previous limit obtained by the MEGA experiment. The analysis of our 2012 and 2013 data is currently underway with improved analysis algorithms, this will double the statistics and lead to a further improvement of the sensitivity.
At the same time an upgrade of the experiment, known as MEG-II is in progress, with the aim of further increasing the sensitivity by an order of magnitude. The key points of the upgrade are improvements to the liquid Xe calorimeter by increasing the granularity of the front face PMTs by using Multi-Pixel Photon Counters as well as installing a new drift chamber and timing counters. As a result the resolutions will be improved as well as the acceptance of the detector and its rate capability increased. A pre-engineering run is scheduled for the end of 2015.

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