

## The MARE project: the calorimetric approach potential

*Monday, December 8, 2008 11:10 AM (30 minutes)*

The international project “Microcalorimeter Arrays for a Rhenium Experiment” (MARE) aims at a direct and calorimetric measurement of the electron antineutrino mass with sub-electronvolt sensitivity.

The experimental strategy consists in analysing the beta spectrum of  $^{187}\text{Re}$  near the end-point looking for the spectral distortion expected for a finite antineutrino mass. In these experiments the detectors are thermal calorimeters with absorbers made of rhenium or of one of its compounds. Therefore the beta decay source is internal to the sensitive detector removing the most severe systematic uncertainties which have plagued the traditional and, so far, more sensitive spectrometers. In the final experimental phase, large arrays with as many as 10000 detectors each will be realized. At least five arrays will be then deployed to collect the statistics required to probe the antineutrino mass with a sensitivity of at least 0.2 eV, comparable to the one expected for the Katrin experiment.

In this talk I would like to give an update on the status of the MARE experimental activity and their prospects. I will then discuss the results of a detailed study of the sensitivity achievable with the calorimetric approach.

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**Session Classification:** Existing Experiments