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## **The radon and radium concentrations in water measurement systems for JUNO's Water Cherenkov Detector**

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The Jiangmen Underground Neutrino Observatory (JUNO), a 20 kton multi-purpose low background liquid scintillator detector, was proposed primarily to determine the neutrino mass ordering. For the sake of suppressing the radioactivity from the surrounding rocks and tagging the cosmic muons, the central detector is submerged in a water Cherenkov detector which is filled with 35 kton ultrapure water and equipped with 2400 20-inch MCP-PMTs. Strict requirements are put forward for the intrinsic radioactivity of the ultrapure water, i.e., the radon concentration should be less than 10 mBq/m<sup>3</sup>. As the progenitor of <sup>222</sup>Rn, the concentration of <sup>226</sup>Ra should also be precisely measured and kept well below 10 mBq/m<sup>3</sup>. In this poster, the details of two measuring systems, optimized to achieve a sensitivity of 1mBq/m<sup>3</sup> for the radon concentration in water and of 10μBq/m<sup>3</sup> for the radium concentration in water, will be described and discussed.

### **Submitted on behalf of a Collaboration?**

Yes

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