

# Study of Radon background in the SuperNEMO detector

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The goal of the SuperNEMO experiment is the search for neutrinoless double-beta decay ( $0\nu\beta\beta$ ), the observation of which would prove that the neutrino is a Majorana particle. As  $0\nu\beta\beta$  is a hypothetical and extremely rare process, it is essential to have the lowest level of background possible.  $^{222}\text{Rn}$  is a gaseous isotope which could emanate from the detector materials or diffuse from the air of the laboratory into the detector, and its daughter isotope  $^{214}\text{Bi}$  with  $Q_\beta = 3.27$  MeV can contribute to the double-beta background. The  $^{222}\text{Rn}$  activity inside the SuperNEMO tracker demonstrator module must be significantly reduced down to 0.15 mBq/m<sup>3</sup>. This poster will detail anti-radon strategies used in SuperNEMO and present the status of the  $^{222}\text{Rn}$  analysis based on first data compared to simulation using the topology of the  $^{214}\text{Bi}$ - $^{214}\text{Po}$  decay event, i.e. one electron followed by a delayed alpha.