

Low energy radioactivity BG model in Super-Kamiokande detector from SK-IV data

Guillaume Pronost

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In this poster, we present how we developed a model of the low energy radioactivity background (mostly ^{222}Rn) distribution in the Super-Kamiokande detector from data. This model allows to improve our understanding of the radon distribution in the detector, and could be use in the future to develop new background rejection methods.

Using SK-IV data sample, we divided the detector in several layers, and compared the event rate distribution in each of them with a MC simulation of the ^{214}Bi decays, allowing to extract the radon concentration in this layer. The current version of the model is able to reproduce the event distribution in the detector, with an average uncertainty of $\Delta C_{Rn} = 0.1 \text{ mBq/m}^3$.