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Light production in liquid and gaseous argon

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Most experiments using noble elements, past, current or planned, have exploited the abundant light yield in the vacuum ultraviolet (VUV) region ranging from 78-80 nm (Ne and He) to 128 nm (Ar), 150 nm (Kr) and 175 nm (Xe). It has however been known that noble elements, when excited by ionizing radiation, do also emit light at longer wavelengths, up to the near-infrared (NIR) although many questions remain on the exact nature of this scintillation both in terms of its atomic/molecular origin as well as its full characterization as regards the light yield, spectral and time structure. In this contribution we report preliminary results from a dedicated experiment in argon, sensitive to both the VUV as well as the non-VUV light. Data was taken both in gas and liquid argon with different concentration levels of nitrogen and we report on the effects of nitrogen on both the VUV and non-VUV light.

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