4. Results and discussion

For the determination of the refractive index by measuring the ratio of the light intensities the sources of errors may be: temperature gradients, light source non-uniformity, PMT photocathode sensitivity inhomogeneity, and external vibrations causing a ripple on the liquid surface. To exclude these errors, the chamber was calibrated in the visible light. A BGO crystal (λ_{scintillation peak} = 480 nm) of 1 mm thick was set on the thin-wall Al window inside the Xe volume and was used as light source. The LXe refractive index at this wavelength was taken from Ref. [2]. Then the BGO crystal was removed and measurements of the LXe refractive index for intrinsic scintillation light were carried out. The value obtained at λ = 180 nm is equal to 1.5655 ± 0.0024 ± 0.0078 for the xenon triple point. The first error is due to the reproducibility of the conditions in the chamber. The second one is due to some differences in ray paths in the cases of BGO and LXe scintillations. According to estimates, this error cannot exceed the value mentioned above and can be decreased by several times in the near future. The result of this measurement together with data from Ref. [2] and extrapolation from Ref. [3] are shown in Fig. 2.

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