

# Description of work for the ESFR project

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① Person-month:

⇒ 3

② Task 3.1.3:

⇒ *"The sensitivities and uncertainties, including those originated from the uncertainties in the nuclear data, will be quantified for the void coefficient. The full Monte Carlo uncertainty evaluation of the void coefficient will be performed using BOLNA."*

③ Based on ESFR MCNP model obtained from JRC Petten,

④ Start: Probably second half of 2010.

The sodium void reactivity (SVR) in units of dollars (\$) can be obtained from:



$$\text{SVR} = \frac{k_2 - k_1}{k_1 k_2} \frac{1}{\beta_{\text{eff}}} \times 10^5, \quad (1)$$

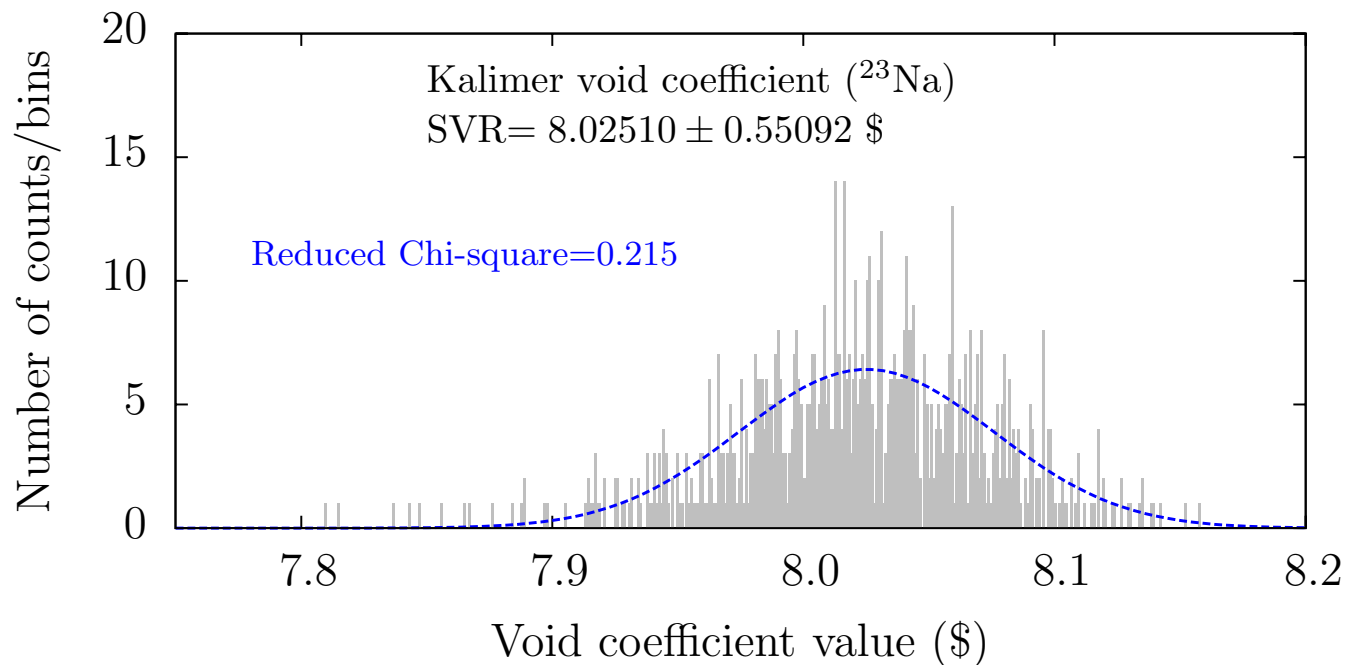


Figure 1: Calculated sodium void coefficient (SVR) for the Kalimer-600 design, varying the  $^{23}\text{Na}$  nuclear data file (*NIM/A 612 (2010) 374.*)

The final SVR is equal to 8.02510 ( $\pm 3\%$  statistical  $\pm 6\%$  nuclear data).