

## **X.R. SAMGY2: SMOOTH THE TABULATED Y2 FUNCTION**

The program SAMGY2 is used to read  $Y_2$  values printed by the Monte-Carlo code SAMSMC into the file MC\_2.DAT, smooth the tabulated  $Y_2$  function, and print into a file called SAMY2.DAT. This output file can then be used for input to a SAMMY run using the command

Y2 VALUES ARE TABULATED ;

values from that file are used instead of the SAMMY-generated  $Y_2$  values in situations where the SAMMY-generated values are insufficiently accurate. Details for generation and use of the SAMY2.DAT file are given in Section III.D and in [NL08].

Because the values produced by Monte-Carlo calculations contain noise, it is advantageous to smooth the curve before using it in the SAMMY multiple-scattering correction procedure. The algorithm for that smoothing is unsophisticated but could easily be improved if the need arises. The current algorithm is an unweighted average over seven nearest-neighbor values,

$$Y_{2s}(E_i) = \frac{1}{7} \sum_{j=i-3}^{j=i+3} Y_2(E_j) . \quad (\text{X R.1})$$

Simulation sim009 gives an example of the use of code SAMGY2.