V. C. AVERAGING THE CROSS SECTIONS

Once the SAMMY analysis is completed, the analyst may wish to average the theoretical curves produced by SAMMY over an energy range (or ranges) in order to more directly compare results with those from other experiments or analyses. Alternatively, the analyst may wish to produce multi-group cross sections plus covariance matrix for use in further calculations.

Three options are available in SAMMY for averaging the cross section:

The original option uses an energy or time average and treats the quantity to be averaged as a histogram. Hence it is useful for averaging experimental data that have been binned into channels but is not so useful for accurate averaging of theoretical cross sections. See Section V.C.1 for details on this option.

The second option uses the Bondarenko [IB64] narrow-resonance scheme for weighting the cross section. Sophisticated integration techniques are used to accurately and rapidly calculate the averages. See Section V.C.2 for details.

The third is an unweighted energy average similar to the first option but uses the same techniques to evaluate the integrals as are used in the Bondarenko option; see Section V.C.3.

In all cases, uncertainties are propagated through the entire procedure. Uncertainties and correlation matrix are printed for the multi-group cross sections.

To ensure accurate uncertainties for the multi-group cross sections, it may be necessary to eliminate the cutoff for non-s-wave resonances (Section II.D.1.b). This is accomplished by inserting the command

```
USE NO CUTOFFS FOR Derivatives or cross sections
```

into the INPut file.