

IV.E. MISCELLANEOUS TOPICS RELATED TO COVARIANCES

For a summary of many of the available SAMMY options related to covariances, the reader is referred to presentations [NL04a], [NL04b], and especially [NL06a].

Section IV.E.1 provides information regarding simultaneous fitting of several data sets.

SAMMY's so-called "retroactive covariance method" is a particular application of the simultaneous fitting procedure of Section IV.E.1. This retroactive method is a means of generating a parameter covariance matrix that is approximately correct for a given (pre-determined) parameter set. See Section IV.E.2 for details.

For a means to set the prior parameter covariance matrix to infinity, thereby reducing Bayes' equations to the usual least-squares equations, see Section IV.E.3. Other topics (such as fitting to multiple data sets while including iteration for nonlinearities) are also covered here.

Generating the covariance matrix associated with the theoretical cross section is described in Section IV.E.4.

For each spin group and channel, the average resonance width and associated uncertainty are calculated and printed in the SAMMY.LPT file. In Section IV.E.5, the algorithm used to generate those values is described.

Section IV.E.6 describes the rationale and methodology for modifying the SAMMY output resonance parameter covariance matrix prior to reporting the values or using for post-processing (e.g., for calculating multigroup averages).