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Improved Photoatomic Processing in RECONR

by

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930824a: Improved Photoatomic Processing in RECONR

S. Ganesan of the IAEA Nuclear Data Section (rng@iaea1.bitnet) has reported two problems with processing the ENDF/B-VI photoatomic files through RECONR with NJOY. First, the total in MT501 seemed to be double counting the photoelectric cross section, and second, the photoelectric edges were not always represented correctly. Both of these problems have been fixed in UP84 (93jul22).

The first problem was fixed by taking care to make MT522 equal to the redundant sum of the sub-shell cross sections from MT534-572. The code now recomputes MT522 to be the sum of its parts, if the parts are given. Also if the parts are given, MT522 is not added into the total cross section in MT501.

The problem with the edges arose because, with sub-shell cross sections given, the discontinuity appears as the first two points in File 23. RECONR did not contain logic to recognize a discontinuity at this position. Now it does.

Ganesan has checked the agreement of the RECONR output with the ENDF/B-VI files graphically. The only remaining disagreements are due to the replacement of double energy points with steep slopes in the normal NJOY manner.