VII.D. COMPLETE SET OF PARTIAL DERIVATIVES FOR RESONANCE PARAMETERS

It is possible for SAMMY to generate an ASCII file containing partial derivatives of the cross sections with respect to all resonance parameters. This option was added to SAMMY for one specialized application, when the results of a SAMMY analysis were to be used as the starting point for a study of integral quantities; it is not expected to be a generally useful option for other applications.

To invoke this SAMMY option, include the statement

```
GENERATE PARTIAL DERIVATIVES ONLY
```

in the INPut file. The output file SAMMY.PDS will then be produced; contents of this file are shown in Table VII D.1.

For this file, resonance parameters are numbered as follows: First, resonances are ordered according to spin groups. Next, resonances are energy ordered within spin groups. Finally, for each resonance, the *u*-parameters associated with the energy, the reduced-gamma-width amplitude, the reduced-neutron-width amplitude, and other reduced width amplitudes (if they exist), are, respectively, the first, second, third, and possibly fourth and fifth parameters. (See Section II.D.1.e for a description of *u*-parameters for the Reich-Moore approximation.)

Table VII D.1. Contents of output file SAMMY.PDS

Line Number	Variable	Columns	Format	Meaning
1	NPAR	1-10	I10	total number of resonance parameters
2, etc.	U(1) to U(NPAR)		6G13.6	value of the parameters
3	DATA(1)	1-13	F	first experimental data value
	DELD(1)	14-26	F	uncertainty on data
	THEORY(1)	27-39	F	theoretical value for first data point
	G(1,1)	40-52	F	partial derivative of THEORY with respect to parameter number 1
	G(1,2)	53-65	F	partial derivative of THEORY with respect to parameter number 2
	G(1,3)	66-79	F	partial derivative of THEORY with respect to parameter number 3
4 etc.	G(1,4) to G(1,NPAR)		6G13.6	partial derivative of THEORY with respect to parameter number 4
5	DATA(i)	1-13	F	*i*th experimental data value
	DELD(i)	14-26	F	uncertainty on data
	THEORY(i)	27-39	F	theoretical value for *i*th data point
	G(i,1)	40-52	F	partial derivative of THEORY with respect to parameter number 1
	G(i,2)	53-65	F	partial derivative of THEORY with respect to parameter number 2
	G(i,3)	66-79	F	partial derivative of THEORY with respect to parameter number 3
6 etc	G(i,4) to G(i,NPAR)		6G13.6	partial derivative of THEORY with respect to parameter number 4
Repeat lines 5 and 6 for each data point.				