

**Possible Changes in Independent Variable Family Flags for Better Checking (A11)**

(N. Otsuka, 2017-05-12)

We cannot distinguish some variables (*e.g.*, secondary energy and secondary momentum, sample thickness and sample temperature) within the current independent variable family flag scheme in Dict.213 cols.56-65. The situation could be improved if we use those similar to family flags in Dict.24. It seems the family flag was originally introduced for the same purpose in Dictionary 24, but its current role in ZCHEX is not clear.

Independent variable family flag (Dictionary 213)		Family flag (Dictionary 24)	First integer of data type flag (Dictionary 24)
Current	Possible replacement		
1 (resonance energy)	C (resonance energy)	C+D (resonance energy)	3 (resonance parameter)
3 (secondary energy)	<i>E</i> (secondary energy)	E+F (secondary energy)	5 (secondary energy)
	<i>L</i> (secondary momentum)	L (secondary linear momentum)	
4 (angle)	G (angle)	G+H (angle of outgoing particle)	6 (angle)
5 (number)	N (number)	N (coefficient number)	7 (number)
	<i>K</i> (sample thickness)	K (sample thickness)	
	<i>6</i> (half-life)	6+7 (half-life)	
6 (other variable)	<i>8</i> (sample temperature)	8+9 (sample temperature)	8 (other variable)
	<i>I</i> (product charge)	I (product charge)	
7 (isotope/particle identification)	<i>J</i> (product mass)	J (product mass)	9 (isotope/particle identification)
	<i>P</i> (number of particles)	P (number of particles)	

**Examples**

1) Time-of-flight spectrum which requires sample thickness as an independent variable

-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8-----+-----9-----									
TRA 201505 TOF				CS	CS	1	6	Time-of-flight spectrum	(Current record)
TRA 201505 TOF				CS	CS	1	K	Time-of-flight spectrum	(Possible replacement)

2) Double differential cross section which require secondary energy and outgoing angle as independent variables

-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8-----+-----9-----									
TRA 198502 DAE				DAE	DAE	13	34	Double differential dAngle/dE'	(Current record)
TRA 198502 DAE				DAE	DAE	13	EG	Double differential dAngle/dE'	(Possible replacement)