======================================================================= Complot

 Complot

 PROGRAM COMPLOT Complot

 =============== Complot

 VERSION 83-1 (FEBRUARY, 1983) Complot

 VERSION 83-2 (MAY, 1983) Complot

 VERSION 83-3 (DECEMBER, 1983) \*MAJOR MODIFICATION. Complot

 \*ADDED SELECTION OF PLOTS BY MAT OR Complot

 ZA/MT/ENERGY RANGE (EV). Complot

 \*ADDED VARIABLE AXIS UNITS (PROGRAM Complot

 CONTROLLED..X=MILLI-EV, EV, KEV, Complot

 MEV...Y=MILLI-BARNS, BARNS). Complot

 VERSION 84-1 (APRIL, 1984) \*ADDED SELECTION BY REACTION/ENERGY Complot

 RANGE. Complot

 \*ADDED IDENTIFY DATA POINTS OPTION Complot

 (SMALL BOX DRAWN AROUND EACH CROSS Complot

 SECTION AND RATIO POINT). Complot

 \*IMPROVED NON-IBM GRAPHICS INTERFACE Complot

 (ALL CHARACTER POSITIONING NOW Complot

 BASED ON CHARACTER, NOT RASTER, Complot

 SIZE). Complot

 VERSION 85-1 (APRIL, 1985) \*SPECIAL I/O ROUTINES TO GUARANTEE Complot

 ACCURACY OF ENERGY. Complot

 \*DOUBLE PRECISION TREATMENT OF Complot

 ENERGY (REQUIRED FOR NARROW Complot

 RESONANCES). Complot

 \*ADDED (ZA,MT) EQUIVALENCE OPTION. Complot

 \*ADDED SMALL PLOT OPTION. Complot

 VERSION 85-2 (AUGUST, 1985) \*FORTRAN-77/H VERSION Complot

 VERSION 86-1 (JANUARY, 1986) \*ENERGY DEPENDENT SCATTERING RADIUS Complot

 VERSION 86-2 (DECEMBER, 1986) \*DOUBLE PRECISION PLOT SCALING Complot

 (REQUIRED FOR NARROW ENERGY RANGES) Complot

 VERSION 88-1 (JULY 1988) \*MAJOR REVISION TO MAKE CODE EASILY Complot

 INTERFACEABLE TO ALMOST ANY PLOTTER Complot

 \*WARNING..INPUT PARAMETERS FROM BEEN Complot

 CHANGED (SEE, DESCRIPTION BELOW) Complot

 \*COMPUTER INDEPENDENT SOFTWARE Complot

 CHARACTERS. Complot

 \*COLOR PLOTS. Complot

 \*MT NUMBER DEFINITIONS FROM DATA Complot

 FILE READ BY PROGRAM Complot

 \*FORTRAN-77 REQUIRED (FORTRAN-H NO Complot

 SUPPORTED BY THIS PROGRAM). Complot

 \*OPTION...INTERNALLY DEFINE ALL I/O Complot

 FILE NAMES (SEE, SUBROUTINE FILEIO Complot

 FOR DETAILS). Complot

 \*IMPROVED BASED ON USER COMMENTS. Complot

 VERSION 88-2 (OCTOBER 1988) \*IMPROVED BASED ON USER COMMENTS. Complot

 \*ADDED LIVERMORE CIVIC COMPILER Complot

 CONVENTIONS. Complot

 \*UPDATED TO USE NEW PROGRAM CONVERT Complot

 KEYWORDS. Complot

 VERSION 89-1 (JANUARY 1989) \*PSYCHOANALYZED BY PROGRAM FREUD TO Complot

 INSURE PROGRAM WILL NOT DO ANYTHING Complot

 CRAZY. Complot

 \*FORTRAN-77/FORTRAN-H COMPATIBLE Complot

 \*SPECIAL ENDF/B MATERIAL DEFINITIONS Complot

 (ZA.LT.1000) FROM DATA FILE READ Complot

 BY PROGRAM. Complot

 VERSION 89-2 (MARCH 1989) \*ADDED ENDF/B-V AND VI MT Complot

 DEFINITIONS. PROGRAM WILL DETERMINE Complot

 ENDF/B FORMAT BASED ON MF=1, Complot

 MT=451 AND USE AS PPROPRIATE MT Complot

 DEFINITIONS. IF NO MF=1, MT=451 Complot

 PROGRAM WILL USE ENDF/B-VI Complot

 MT DEFINITIONS. Complot

 VERSION 90-1 (AUGUST 1990) \*A NEW PROGRAM Complot

 \*ADDED INTERACTIVE MOUSE INPUT Complot

 \*ADDED 3 CHARACTER FONTS Complot

 \*ADDED PHOTON DATA, MF=23 AND 27 Complot

 \*ADDED FORTRAN SAVE OPTION. Complot

 \*ADDED MAXIMUM RATIO RANGE WHEN Complot

 PLOTTING RATIOS. Complot

 \*ADDED GRID TYPES Complot

 \*ADDED VARIABLE LINE THICKNESS Complot

 \*WARNING...INPUT PARAMETER FORMAT Complot

 HAS BEEN CHANGED...SEE DESCRIPTION Complot

 BELOW. Complot

 VERSION 92-1 (JANUARY 1992) \*ADDED INCIDENT CHARGED PARTICLES Complot

 (IDENTIFIED IN PLOT TITLES) Complot

 \*ADDED COMPLETELY COMPATIBLE I/O Complot

 FOR READING FLOATING POINT NUMBERS. Complot

 VERSION 92-2 (MAY 1992) \*CORRECTED DESCRIPTION OF INPUT Complot

 PARAMETERS AND EXAMPLE PROBLEMS. Complot

 \*ADDED VARIABLE CHARACTER SIZE INPUT Complot

 VERSION 93-1 (MARCH 1993) \*UPDATE FOR ON SCREEN GRAPHIC Complot

 OUTPUT USING THE LAHEY COMPILER Complot

 \*ADDED NU-BAR (TOTAL, DELAYED, Complot

 PROMPT). Complot

 VERSION 94-1 (JANUARY 1994) \*VARIABLE ENDF/B DATA FILENAMES Complot

 TO ALLOW ACCESS TO FILE STRUCTURES Complot

 (WARNING - INPUT PARAMETER FORMAT Complot

 HAS BEEN CHANGED) Complot

 \*CLOSE ALL FILES BEFORE TERMINATING Complot

 (SEE, SUBROUTINE ENDIT) Complot

 VERSION 95-1 (MARCH 1995) \*CORRECTED CROSS SECTION Complot

 MULTIPLIER FOR EQUIVALENCES Complot

 \*CORRECTED RATIO SCALING, FOR Complot

 MAXIMUM RATIO LESS THAN 1.0 Complot

 VERSION 96-1 (JANUARY 1996) \*COMPLETE RE-WRITE Complot

 \*IMPROVED COMPUTER INDEPENDENCE Complot

 \*ALL DOUBLE PRECISION Complot

 \*UNIFORM TREATMENT OF ENDF/B I/O Complot

 \*IMPROVED OUTPUT PRECISION Complot

 \*DEFINED SCRATCH FILE NAMES Complot

 \*INCREASED PAGE SIZE FROM 24000 Complot

 TO 48000 POINTS Complot

 VERSION 97-1 (APRIL 1997) \*INCREASED PAGE SIZE FROM 48000 Complot

 TO 480000 POINTS Complot

 VERSION 99-1 (MARCH 1999) \*CORRECTED CHARACTER TO FLOATING Complot

 POINT READ FOR MORE DIGITS Complot

 \*UPDATED TEST FOR ENDF/B FORMAT Complot

 VERSION BASED ON RECENT FORMAT CHANGE Complot

 \*GENERAL IMPROVEMENTS BASED ON Complot

 USER FEEDBACK Complot

 VERS. 2000-1 (FEBRUARY 2000)\*GENERAL IMPROVEMENTS BASED ON Complot

 USER FEEDBACK Complot

 VERS. 2002-1 (MAY 2002) \*INPUT PARAMETERS OPTIONAL Complot

 \*CONTROL MINIMUM RATIO RANGE BY INPUT Complot

 \*OPTIONAL BLACK OR WHITE BACKGROUND Complot

 VERS. 2004-1 (SEPT. 2004) \*ADDED INCLUDE FOR COMMON Complot

 \*INCREASED PAGE SIZE FROM 480000 Complot

 TO 600000 POINTS Complot

 \*ADDED NEW REICH-MOORE TO FILE2 TO Complot

 ALLOW IDENTIFICATION OF RESOLVED AND Complot

 ANY FOLLOWING UNRESOLVED RESONANCE Complot

 REGIONS. Complot

 VERS. 2007-1 (JAN. 2007) \*CHECKED AGAINST ALL ENDF/B-VII. Complot

 \*INCREASED MAXLOAD TO 600,000 FROM Complot

 12,000 Complot

 VERS. 2009-1 (JAN. 2009) \*IGNORED DIFFERENCES NEAR RESONANCE Complot

 REGION BOUNDARIES (RESOLVED AND Complot

 UNRESOLVED). Complot

 VERS. 2010-1 (July 2010) \*Allow comparison plot even if there Complot

 is no difference (just see data). Complot

 \*ONLY plot linearly interpoolable data Complot

 \*Include threshold energy points to Complot

 show cross sections, but NOT ratios Complot

 near threshold. Complot

 VERS. 2011-1 (Jan. 2011) \*Increased MT.DAT from 200 to 1,000 Complot

 entries, to accommodate new MTs. Complot

 VERS. 2012-1 (Aug. 2012) \*Increased incident particle list to Complot

 include photon (ZA = 0). Complot

 \*Added CODENAME Complot

 \*32 and 64 bit Compatible Complot

 \*Added ERROR stop Complot

 VERS. 2013-1 (Nov. 2013) \*ONLY use min/max ratios to decide Complot

 whether or not to plot - non-positive Complot

 cross sections are no longer used. Complot

 \*Limited per-cent differences to fit Complot

 output format = -9999 to +9999 %. Complot

 \*OUT9 replaced NORMX Complot

 VERS. 2015-1 (Jan. 2015) \*Added MF=10 Radionuclide Production Complot

 which requires longer plot titles. Complot

 \*Restricted character size multiplier Complot

 to 0.5 to 1.5 to accommodate longer Complot

 plot titles. Complot

 \*Replaced ALL 3 way if statements. Complot

 **VERS. 2015-2 (Mar. 2015) \*Corrected tables for X and Y axis Complot**

 **labels = search for 2015-2 Complot**

 **Complot**

 **2015-2 Acknowledgment Complot**

 **===================== Complot**

 **I thank Chuck Whitmer (TerraPower,WA) for reporting the errors Complot**

 **that led to the 2015-2 Improvements in this code. Complot**

 **Complot**

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 **LINUX (32 or 63 bit) executables. And most of all I must thank Complot**

 **Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project Complot**

 **at IAEA, Vienna. This was a truly International team who worked Complot**

 **together to produce PREPRO 2015-2. Complot**

 Complot

 OWNED, MAINTAINED AND DISTRIBUTED BY Complot

 ------------------------------------ Complot

 THE NUCLEAR DATA SECTION Complot

 INTERNATIONAL ATOMIC ENERGY AGENCY Complot

 P.O. BOX 100 Complot

 A-1400, VIENNA, AUSTRIA Complot

 EUROPE Complot

 Complot

 ORIGINALLY WRITTEN BY Complot

 ------------------------------------ Complot

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 Complot

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 --------------------------- Complot

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 Complot

 AUTHORS MESSAGE Complot

 --------------- Complot

 THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION Complot

 ALL RECENT IMPROVEMENTS. PLEASE READ ALL OF THESE COMMENTS BEFORE, Complot

 PARTICULARLY THE COMMENTS CONCERNING MACHINE DEPENDENT CODING. Complot

 Complot

 AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Complot

 INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE Complot

 OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Complot

 IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY Complot

 COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Complot

 IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF Complot

 THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR Complot

 COMPUTER. Complot

 Complot

 PURPOSE Complot

 ------- Complot

 COMPARE ENDF/B FORMATTED DATA FROM TWO SEPARATE INPUT TAPES. Complot

 REACTIONS ARE CONSIDERED TO BE COMPARABLE IF THEY HAVE THE SAME Complot

 (ZA,MF,MT). RESULTS ARE PRESENTED IN GRAPHICAL FORM. Complot

 Complot

 IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B Complot

 TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS, Complot

 DISK OR ANY OTHER MEDIUM. Complot

 Complot

 ON WHAT COMPUTERS WILL THE PROGRAM RUN Complot

 ------------------------------------------------------------------ Complot

 THE PROGRAM HAS BEEN IMPLEMENTED ON A VARIETY OF COMPUTERS FROM Complot

 CRAY AND IBM MAINFRAME TO SUN WORKSTATIONS TO AN IBM-AT PC. THE Complot

 PROGRAM IS SMALL ENOUGH TO RUN ON VIRTUALLY ANY COMPUTER. Complot

 Complot

 THE PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE Complot

 (DESCRIBED BELOW) AND ALLOWS THE USER SPECIFY THE PHYSICAL SIZE Complot

 OF THE PLOTTER BEING USED, BY INPUT PARAMETERS. USING THESE Complot

 CONVENTIONS THIS PROGRAM CAN BE EASILY INTERFACED TO VIRTUALLY Complot

 ANY PLOTTER. Complot

 Complot

 FOR SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON, Complot

 (1) COMPUTER DEPENDENT CODING Complot

 (2) PLOTTER/GRAPHICS TERMINAL INTERFACE Complot

 Complot

 GRAPHICS INTERFACE Complot

 ------------------------------------------------------------------ Complot

 THIS PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE WHICH Complot

 REQUIRES ONLY 3 SUBROUTINES...PLOTS, PLOT AND PEN (DESCRIBED IN Complot

 DETAIL BELOW). ALL CHARACTERS AND SYMBOLS ARE DRAWN USING TABLES Complot

 OF PEN STROKES (SUPPLIED WITH THIS PROGRAM). USING THIS METHOD Complot

 THE PROGRAM SHOULD BE SIMPLE TO INTERFACE TO VIRTUALLY ANY PLOTTER Complot

 OR GRAPHICS TERMINAL AND THE APPEARANCE AND LAYOUT OF THE PLOTS Complot

 SHOULD BE INDEPENDENT OF WHICH PLOTTER IS USED. Complot

 Complot

 2015 PLOTTER DIMENSIONS Complot

 ================================================================== Complot

 PLOTTER DIMENSIONS ARE IN INCHES - NOT CM, MM, OR CUBITS. Complot

 THIS IS DONE FOR HISTORICAL REASONS AND HOPEFULLY THIS WILL Complot

 NOT INCONVENIENCE ANYONE - IN PRACTICE I HAVE USED EXACTLY THE Complot

 SAME DIMENSION = X = 0 to 12.5 and Y = 0 to 10 FOR DECADES Complot

 TO PRODUCE BOTH ON-SCREEN AND HARDCOPY POSTSCRIPT PLOTS. Complot

 Complot

 I STRONGLY SUGGEST THAT YOU NOT CHANGE THESE DIMENSIONS UNLESS Complot

 YOU MUST = BASED ON THE PLOT SIZE YOU OBTAIN WHEN YOU FIRST RUN Complot

 THIS CODE. Complot

 Complot

 PROGRAM IDENTIFICATION Complot

 ---------------------- Complot

 AS DISTRIBUTED THE FIRST FRAME OF PLOTTED OUTPUT WILL DOCUMENT Complot

 THE PROGRAM NAME, VERSION AND INSTALLATION. THIS INFORMATION IS Complot

 STORED AS DATA IN THE ARRAY VERSES NEAR THE BEGINNING OF Complot

 SUBROUTINE FRAME1. IF YOU WISH TO CUSTOMIZE THE OUTPUT TO IDENTIFY Complot

 YOUR INSTALLATION CHANGE THE LAST TWO LINES OF THE ARRAY (VERSES). Complot

 Complot

 ENDF/B FORMAT Complot

 ------------- Complot

 THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS Complot

 OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION Complot

 OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV, V OR VI FORMAT). Complot

 Complot

 BOTH SETS OF EVALUATED DATA MUST BE IN THE ENDF/B FORMAT. ONLY Complot

 SECTIONS OF FILE 2 (RESONANCE PARAMETERS) AND FILES 3, 23 AND 27 Complot

 (TABULATED DATA) WILL BE READ AND ALL OTHER SECTIONS WILL BE Complot

 SKIPPED. IN FILE 2 THE ONLY IMPORTANT INFORMATION IS THE ENERGY Complot

 LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE REGION WHICH IS Complot

 LOCATED IN THE SAME FIELDS IN ALL VERSIONS OF THE ENDF/B FORMAT. Complot

 SIMILARLY THE FORMAT OF FILES 3, 23 AND 27 IS THE SAME IN ALL Complot

 VERSIONS OF ENDF/B. THEREFORE THIS PROGRAM CAN BE USED WITH DATA Complot

 IN ANY ENDF/B FORMAT (I.E. ENDF/B-I, II, III, IV, V OR VI). Complot

 Complot

 CROSS SECTION INTERPOLATION Complot

 --------------------------- Complot

 CROSS SECTIONS MUST BE IN EITHER HISTOGRAM (I.E., INTERPOLATION Complot

 LAW 1) OR LINEARLY INTERPOLABLE (I.E. INTERPOLATION LAW 2) FORM. Complot

 IF THEY ARE NOT A WARNING MESSAGE WILL BE PRINTED AND EXECUTION Complot

 WILL BE TERMINATED. SEE INSTRUCTIONS BELOW ON HOW TO CONVERT Complot

 DATA TO HISTOGRAM OR LINEARLY INTERPOLABLE FORM. Complot

 Complot

 REACTION INDEX Complot

 -------------- Complot

 THIS PROGRAM DOES NOT USE THE REACTION INDEX WHICH IS GIVEN IN Complot

 SECTION MF=1, MT=451 OF EACH EVALUATION. Complot

 Complot

 SECTION SIZE Complot

 ------------ Complot

 SINCE THIS PROGRAM USES A LOGICAL PAGING SYSTEM THERE IS NO LIMIT Complot

 TO THE NUMBER OF POINTS IN ANY SECTION, E.G., THE TOTAL CROSS Complot

 SECTION MAY BE REPRESENTED BY 200,000 DATA POINTS. Complot

 Complot

 DATA SELECTION Complot

 -------------- Complot

 THE USER MAY SPECIFYING THE DATA TO BE COMPARED BY INPUTTING UP Complot

 TO 100 MAT/MT/ENERGY OR ZA/MT/ENERGY RANGES. IF THE UPPER LIMIT Complot

 OF THE MAT OR ZA RANGE IS LESS THAN THE LOWER LIMIT IT WILL BE SET Complot

 EQUAL TO THE LOWER LIMIT (I.E. THIS INDICATE ONLY COMPARE ONE Complot

 MAT OR ZA). IF THE UPPER LIMIT IS STILL ZERO IT WILL BE SET TO Complot

 9999 (NO LIMIT). IF THE UPPER MF OR MT LIMIT IS ZERO IT WILL BE Complot

 SET TO 99 OR 999, RESPECTIVELY (NO LIMIT). IF THE UPPER ENERGY Complot

 LIMIT IS ZERO IT WILL BE SET TO A LARGE NUMBER (NO LIMIT). Complot

 Complot

 THE LIST OF RANGES MUST BE TERMINATED BY A BLANK LINE (I.E. ZERO Complot

 LOWER AND UPPER MAT/MF/MT OR ZA/MF/MT LIMITS). Complot

 Complot

 IF THE FIRST RANGE LINE IS BLANK THIS LINE WILL TERMINATE THE Complot

 LIST OF REQUESTS (I.E. A SECOND BLANK LINE NEED NOT BE INPUT) Complot

 AND ALL PHYSICALLY COMPARABLE DATA WILL BE PLOTTED. Complot

 Complot

 WHICH REACTIONS WILL BE PLOTTED Complot

 ------------------------------- Complot

 THOSE REACTIONS WITH THE SAME (ZA, MF, MT) WILL BE COMPARED, BUT Complot

 ONLY THOSE DATA WHICH DIFFER BY A USER SPECIFIED ALLOWABLE Complot

 DIFFERENCE WILL BE PLOTTED. IN ORDER TO FORCE ALL COMPARABLE Complot

 REACTIONS TO BE PLOTTED THE USER NEED ONLY SPECIFY AN ALLOWABLE Complot

 DIFFERENCE OF ZERO. Complot

 Complot

 EQUIVALENT REACTIONS Complot

 -------------------- Complot

 IN ORDER TO COMPARE REACTIONS WHICH HAVE DIFFERENT ZA, MF OR MT Complot

 THE USER IS ALLOWED TO SPECIFY AN EQUIVALENCE LIST OF UP TO Complot

 100 (ZA,MF,MT) COMBINATIONS ON THE MASTER FILE WHICH ARE TO BE Complot

 EQUATED TO DIFFERENT (ZA,MF,MT) ON THE SECOND FILE. THIS OPTION Complot

 MAY BE USED TO COMPARE SIMILAR REACTIONS FROM DIFFERENT MATERIALS Complot

 (E.G. IRON AND NICKEL INELASTIC SCATTERING) OR DIFFERENT REACTIONS Complot

 FROM THE SAME OR DIFFERENT MATERIALS (E.G. U-235 CAPTURE AND Complot

 FISSION - IN WHICH CASE THE RATIO WILL BE THE CAPTURE TO FISSION Complot

 RATIO) OR THE SAME REACTION IN DIFFERENT VERSIONS OF THE ENDF/B Complot

 FORMAT WHICH MAY BE ASSIGNED DIFFERENT MT NUMBERS, E.G., THE Complot

 PHOTOELECTRIC CROSS SECTION IS MT=602 IN ENDF/B-V AND EARLIER Complot

 VERSIONS OF ENDF/B, BUT IS MT=522 IN ENDF/B-VI. Complot

 Complot

 IN THESE EQUIVALENCE LISTS A ZERO FIELD IMPLIES ALL. FOR EXAMPLE, Complot

 TO EQUATE MT=522 FROM ONE FILE TO MT=602 ON THE OTHER, FOR ALL Complot

 MATERIALS, ONE NEED ONLY SPECIFY ZA=0, MF=23, MT=522 EQUIVALENT Complot

 TO ZA=0, MF=23 AND MT=602. Complot

 Complot

 PLOT FORMATS Complot

 ------------ Complot

 THE TWO CROSS SECTIONS ARE CONSIDERED TO BE A STANDARD (THE FIRST Complot

 CROSS SECTION) AND A CROSS SECTION TO BE COMPARED TO THE STANDARD Complot

 (THE SECOND CROSS SECTION). THE OUTPUT FROM THIS PROGRAM IS A Complot

 SERIES OF PLOTS. EACH PLOT WILL CONTAIN THE STANDARD CROSS SECTION Complot

 AND IN ADDITION THE USER MAY SPECIFY THAT EACH PLOT ALSO CONTAIN Complot

 THE SECOND CROSS SECTION AND/OR THE RATIO OF THE SECOND CROSS Complot

 SECTION TO THE FIRST CROSS SECTION. Complot

 Complot

 THE USER MAY SELECT ONE OF THE FOLLOWING FIVE PLOT FORMATS (THE Complot

 NUMBER PRECEDING THE OPTION IS THE VALUE OF THE PLOT MODE SELECTOR Complot

 THAT THE USER SHOULD SPECIFY AS INPUT ON THE FIRST LINE). Complot

 Complot

 (0) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot

 RATIO OF THE SECOND EVALUATION TO THE FIRST EVALUATION. THE Complot

 DATA WILL BE PRESENETED AS TWO SUB-PLOTS PER PLOT WITH THE Complot

 STANDARD CROSS SECTION IN THE UPPER HALF OF THE PLOT AND THE Complot

 RATIO IN THE LOWER HALF OF THE PLOT. Complot

 Complot

 (1) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot

 SECOND EVALUATION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS Complot

 PER PLOT WITH THE STANDARD CROSS SECTION ON THE UPPER HALF Complot

 OF THE PLOT AND THE SECOND CROSS SECTION IN THE LOWER HALF OF Complot

 THE PLOT. Complot

 Complot

 (2) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot

 SECOND EVALUATION. THE DATA WILL BE PRESENTED AS ONE PLOT Complot

 CONTAINING BOTH THE STANDARD AND SECOND CROSS SECTION. THE Complot

 STANDARD CROSS SECTION WILL BE PRESENTED AS A SOLID LINE AND Complot

 THE SECOND CROSS SECTION WILL BE PRESENTED AS A DASHED LINE. Complot

 Complot

 (3) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF Complot

 THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA Complot

 WILL BE PRESENTED AS THREE SUB-PLOTS PER PLOT WITH THE Complot

 STANDARD CROSS SECTION IN THE UPPER THIRD OF THE PLOT, THE Complot

 SECOND CROSS SECTION IN THE MIDDLE THIRD AND THE RATIO OF THE Complot

 TWO IN THE LOWER THIRD OF THE PLOT (RECOMMENDED OPTION). Complot

 Complot

 (4) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF Complot

 THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA Complot

 WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD Complot

 AND SECOND CROSS SECTION ON THE SAME SUB-PLOT IN THE UPPER Complot

 TWO THIRDS OF THE PLOT AND THE RATIO OF THE TWO IN THE LOWER Complot

 THIRD OF THE PLOT. THE STANDARD CROSS SECTION WILL BE Complot

 PRESENTED AS A SOLID LINE AND THE SECOND CROSS SECTION WILL BE Complot

 PRESENTED AS A DASHED LINE. Complot

 Complot

 ADDITIONAL PLOT FEATURES Complot

 ------------------------ Complot

 IN ADDITION TO THE CROSS SECTIONS AND/OR RATIO THE FOLLOWING Complot

 INFORMATIONS WILL BE INCLUDED ON EACH PLOT. Complot

 Complot

 (1) AN IDENTIFICATION FOR EACH SET OF CROSS SECTIONS (UP TO 30 Complot

 CHARACTERS FOR EACH SET). Complot

 Complot

 (2) THE MAXIMUM NEGATIVE AND POSITIVE PER-CENT DIFFERENCE BETWEEN Complot

 THE TWO CROSS SECTIONS. Complot

 Complot

 (3) ARROWS INDICATING THE ENERGY AT WHICH THE MAXIMUM DIFFERENCES Complot

 (MINIMUM AND MAXIMUM RATIO) OCCUR. Complot

 Complot

 (4) THE ENERGY LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE Complot

 REGION (IF THEY FALL WITHIN THE ENERGY LIMITS OF THE PLOT). Complot

 Complot

 RATIO DATA Complot

 ---------- Complot

 IF RATIO OUTPUT IS REQUESTED THE RATIO WILL BE DEFINED AT EACH Complot

 ENERGY THAT APPEARS IN EITHER EVALUATION. BETWEEN THESE ENERGIES Complot

 THE RATIO WILL BE PLOTTED ASSUMING LINEAR DEPENDENCE BETWEEN Complot

 TABULATED VALUES. FOR HISTOGRAM OR LINEARLY INTERPOLABLE CROSS Complot

 SECTIONS THIS REPRESENTATION WILL POINT OUT ALL EXTREMA OF THE Complot

 RATIO, BUT NOT NECESSARILY THE ENERGY DEPENDENCE BETWEEN TABULATED Complot

 VALUES. Complot

 Complot

 IF THE EVALUATED DATA IS NOT IN EITHER HISTOGRAM OR LINRARLY Complot

 INTERPOLABLE FORM THE RATIO MAY NOT EVEN FIND ALL EXTREMA. FOR Complot

 EXAMPLE, IF ONE EVALUATION IS LINEARLY INTERPOLABLE AND THE Complot

 OTHER NON-LINEAR, BUT BOTH AGREE AT ALL TABULATED ENERGIES THE Complot

 RATIO WILL APPEAR TO BE EQUAL TO UNITY AT ALL ENERGIES, BUT IN Complot

 FACT THE CROSS SECTION BETWEEN TABULATED ENERGIES MAY BE QUITE Complot

 DIFFERENT USING LINEAR VS. NON-LINEAR INTERPOLATION. FOR THIS Complot

 REASON ONLY LINEARLY INTERPOLABLE OR HISTOGRAM DATA IS ALLOWED Complot

 AS INPUT TO THIS PROGRAM. Complot

 Complot

 LINEAR INTERPOLABLE Complot

 ------------------- Complot

 ALL CROSS SECTIONS MAY BE CONVERTED TO LINEARLY INTERPOLABLE FORM Complot

 BE USING PROGRAM LINEAR (UCRL-50400, VOL. 17, PART A). Complot

 Complot

 HISTOGRAM Complot

 --------- Complot

 ALL LINEARLY INTERPOLABLE CROSS SECTION MAY BE CONVERTED TO Complot

 HISTOGRAM (I.E. MULTIGROUP) FORM BY USING PROGRAM GROUPIE Complot

 (UCRL-50400, VOL. 17, PART D). Complot

 Complot

 INPUT UNITS Complot

 ----------- Complot

 UNIT DESCRIPTION Complot

 ---- ----------- Complot

 2 INPUT LINE Complot

 9 MT DEFINITIONS. Complot

 10 FIRST ENDF/B FORMATTED EVALUATION (STANDARD). Complot

 11 SECOND ENDF/B FORMATTED EVALUATION. Complot

 17 SOFTWARE CHARACTERS. Complot

 18 SOFTWARE SYMBOLS AND LINE TYPES Complot

 Complot

 OUTPUT UNITS Complot

 ------------ Complot

 UNIT DESCRIPTION Complot

 ---- ----------- Complot

 3 NORMAL OUTPUT REPORT. Complot

 16 PLOTTER UNIT Complot

 Complot

 SCRATCH UNITS Complot

 ------------- Complot

 UNIT DESCRIPTION Complot

 ---- ----------- Complot

 12 SCRATCH UNIT FOR FIRST EVALUATION Complot

 13 SCRATCH UNIT FOR SECOND EVALUATION Complot

 14 SCRATCH UNIT FOR RATIO (ONLY USED IF RATIOS REQUESTED). Complot

 Complot

 OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2) Complot

 --------------------------------------------------------------- Complot

 UNIT FILE NAME Complot

 ---- ---------- Complot

 2 COMPLOT.INP Complot

 3 COMPLOT.LST Complot

 9 MT.DAT Complot

 10 ENDFB.IN1 (OR AS READ FROM INPUT) Complot

 11 ENDFB.IN2 (OR AS READ FROM INPUT) Complot

 12-14 (SCRATCH) Complot

 15 PLOT.CHR Complot

 16 (PLOTTER UNIT...USUALLY A DUMMY) Complot

 Complot

 INPUT PARAMETERS Complot

 ------------------------------------------------------------------ Complot

 LINE COLUMNS FORMAT DESCRIPTION Complot

 ---- ------- ------ ----------- Complot

 1 1-11 E11.4 LOWER X LIMIT OF PLOTTER Complot

 12-22 E11.4 UPPER X LIMIT OF PLOTTER Complot

 23-33 E11.4 LOWER Y LIMIT OF PLOTTER Complot

 34-44 E11.4 UPPER Y LIMIT OF PLOTTER Complot

 45-55 I11 NUMBER OF PLOTS PER FRAME IN X DIRECTION Complot

 56-66 I11 NUMBER OF PLOTS PER FRAME IN Y DIRECTION Complot

 67-70 F4.1 CHARACTER SIZE MULTIPLIER Complot

 = 0 TO 1 - NORMAL CHARACTER SIZE Complot

 = OTHERWISE - CHARACTERS SCALED BY THIS Complot

 FACTOR Complot

 Complot

 PLOT ORIENTATION IS BASED ON THE UPPER X Complot

 LIMIT Complot

 = .GT.0 - X HORIZONTAL/Y VERTICAL Complot

 = .LT.0 - Y HORIZONTAL/X VERTICAL Complot

 AFTER TESTING THE UPPER X LIMIT WILL BE Complot

 SET TO ITS ABSOLUTE VALUE. Complot

 2 1-72 A72 FILENAME FOR FIRST ENDF/B DATA FILE Complot

 (LEAVE BLANK FOR ENDFB.IN1) Complot

 3 1-72 A72 FILENAME FOR SECOND ENDF/B DATA FILE Complot

 (LEAVE BLANK FOR ENDFB.IN2) Complot

 4 1-11 I11 RETRIEVAL MODE (0=MAT, 1=ZA) Complot

 12-22 I11 GRID (SPEED) OPTION. Complot

 = 0 - TICK MARKS ON BORDER Complot

 = 1 - SOLID AT COARSE INTERVALS Complot

 = 2 - DASHED AT COARSE INTERVALS Complot

 = 3 - SOLID AT COARSE AND FINE INTERVALS Complot

 = 4 - DASHED AT COARSE AND FINE INTERVALS Complot

 = 5 - SOLID COARSE/DASHED FINE INTERVALS Complot

 23-33 I11 SHOULD BORDER BE PLOTTED AROUND EACH PLOT Complot

 = 0 - NO Complot

 = 1 - YES Complot

 34-44 I11 LINE THICKNESS Complot

 = 0 TO 5 - LINES AND CHARACTERS Complot

 =-1 TO -5 - ONLY LINES Complot

 45-55 I11 OUTPUT MODE Complot

 =-1 - ONLY COMPARISON LISTING. NO PLOTS. Complot

 = 0 - CROSS SECTION OVER RATIO. Complot

 = 1 - CROSS SECTION OVER CROSS SECTION. Complot

 = 2 - TWO CROSS SECTIONS ON SAME PLOT. Complot

 = 3 - CROSS SECTION OVER CROSS SECTION OVER Complot

 RATIO. Complot

 = 4 - TWO CROSS SECTIONS ON SAME PLOT OVER Complot

 RATIO. Complot

 56-66 I11 STARTING PLOT NUMBER Complot

 = 0 - DO NOT NUMBER PLOTS Complot

 = .GT.0 - NUMBER PLOTS IN LOWER LEFT HAND Complot

 CORNER STARTING WITH INPUT NUMBER Complot

 67-70 I41 BACKGROUND COLOR Complot

 = 0 = BLACK Complot

 = OTHERWISE = WHITE Complot

 5 1-11 E11.4 ALLOWABLE FRACTIONAL DIFFERENCE. USED WHEN Complot

 PLOTTING RATIOS. ANY REACTION WHERE THE Complot

 TWO EVALUATIONS DIFFER BY MORE THAN THE Complot

 ALLOWABLE DIFFERENCE WILL BE PLOTTED. IF Complot

 ZERO IS INPUT THE STANDARD ALLOWABLE Complot

 DIFFERENCE OF 0.001 (0.1 PER-CENT) WILL BE Complot

 USED. Complot

 12-22 E11.4 MAXIMUM ALLOWABLE RATIO. IF RATIOS ARE Complot

 PLOTTED THEY WILL BE IN THE RANGE RATMAX Complot

 TO 1/RATMAX. IF 0.0 IS INPUT THERE WILL Complot

 BE NO LIMIT ON THE RANGE OF THE RATIOS. Complot

 THIS OPTION MAY BE USED TO IGNORE LARGE Complot

 DIFFERENCES OVER VERY NARROW ENERGY RANGES Complot

 (WHICH MAY BE UNIMPORTANT) AND ALLOW ONE Complot

 TO SEE IMPORTANT, BUT SMALLER DIFFERENCES, Complot

 OVER EXTENDED ENERGY RANGES. Complot

 6 1-40 40A1 IDENTIFICATION FOR UPPER EVALUATIONS Complot

 7 1-40 40A1 IDENTIFICATION FOR LOWER EVALUATIONS Complot

 (IDENTIFICATIONS SHOULD BE LEFT ADJUSTED Complot

 TO START IN COLUMN 1). Complot

 8-N 1- 6 I6 LOWER MAT OR ZA LIMIT (SEE SELECTION MODE, Complot

 INPUT LINE 1, COLUMNS 1-11). Complot

 7- 8 I2 LOWER MF LIMIT Complot

 9-11 I3 LOWER MT LIMIT Complot

 12-22 E11.4 LOWER ENERGY LIMIT Complot

 23-28 I6 UPPER MAT OR ZA LIMIT (SEE SELECTION MODE, Complot

 INPUT LINE 1, COLUMNS 1-11). Complot

 29-30 I2 UPPER MF LIMIT Complot

 31-33 I3 UPPER MT LIMIT Complot

 34-44 E11.4 UPPER ENERGY LIMIT Complot

 45-55 I11 IDENTIFY EVALUATED DATA POINTS OPTION. Complot

 = 0 - DO NOT IDENTIFY DATA POINTS. Complot

 = 1 - IDENTIFY DATA POINTS (BY DRAWING A Complot

 SMALL BOX AROUND EACH POINT). Complot

 56-66 I11 INTERACTIVE INPUT FLAG Complot

 = 0 - NO INTERACTIVE INPUT ALLOWED Complot

 = 1 - INTERACTIVE INPUT ALLOWED Complot

 \*SETTING THIS OPTION =1 WILL TURN ON THE Complot

 MOUSE AFTER EACH PLOT AND ALLOW YOU TO Complot

 INTERACTIVELY SPECIFY PLOT LIMITS. Complot

 \*IF YOU DO NOT WISH TO INTERACT WITH A PLOT Complot

 OR IF YOU HAVE NO INTERACTIVE CAPABILITY Complot

 THIS OPTION SHOULD BE SET = 0. Complot

 Complot

 \*WARNING...DATA POINTS IDENTIFIED OPTION IS Complot

 NOT RECOMMENDED FOR PLOTS CONTAINING MANY Complot

 (I.E. THOUSANDS) OF DATA POINTS SINCE IT Complot

 WILL MERELY INCREASE THE RUNNING TIME OF Complot

 THE PROGRAM AND STILL NOT ALLOW ONE TO Complot

 ACCURATELY SEE DATA POINTS. Complot

 Complot

 \*UP TO 100 MAT OR ZA RANGES ARE ALLOWED. Complot

 THE LIST IS TERMINATED BY A BLANK LINE. Complot

 IF THE UPPER LIMIT IS LESS THAN THE LOWER Complot

 LIMIT IT WILL BE SET EQUAL TO THE LOWER Complot

 LIMIT. IF THE FIRST RANGE LINE IS BLANK Complot

 ALL DATA WILL BE RETRIEVED. IF THE UPPER Complot

 MT LIMIT IS ZERO IT WILL BE SET EQUAL TO Complot

 999 (NO LIMIT). IF THE UPPER ENERGY LIMIT Complot

 IS ZERO IT WILL BE INTREPRETED TO MEAN NO Complot

 LIMIT. IF THE FIRST RANGE LINE SPECIFIES Complot

 ZERO LOWER AND UPPER MAT OR ZA RANGE IT Complot

 WILL TERMINATE THE LIST BE RANGE LINES Complot

 (A SECOND BLANK LINE NEED NOT BE INPUT) Complot

 AND THE ENTIRE RANGE OF MATS WILL BE Complot

 COMPARED FOR THE SPECIFIED MT AND ENERGY Complot

 RANGES. Complot

 Complot

 N+1-M EQUIVALENCES Complot

 1- 6 I6 MASTER ZA. Complot

 7- 8 I2 MASTER MF. Complot

 9-11 I3 MASTER MT. Complot

 12-17 I6 EQUIVALENT ZA FROM SECOND FILE. Complot

 18-19 I2 EQUIVALENT MF FROM SECOND FILE. Complot

 20-22 I3 EQUIVALENT MT FROM SECOND FILE. Complot

 23-33 E11.4 MULTIPLICATION FACTOR. ANY EQUATED ZA,MF, Complot

 MT DATA WILL BE MULTIPLIED BY THIS FACTOR. Complot

 \*THIS OPTION MAY BE USED TO RE-NORMALIZE Complot

 THE SECOND CROSS SECTION OR IF COMPARING Complot

 ONE CONSTITUENT OF A MIXTURE TO THE MIXED Complot

 CROSS SECTION THIS MAY BE USED TO CONVERT Complot

 THE SECOND CROSS SECTION TO BARNS PER MIXED Complot

 ATOM BY USING A MULTIPLICATION FACTOR WHICH Complot

 IS EQUAL TO THE NUMBER OF ATOMS OF THE ONE Complot

 CONSTITUENT PER ATOM OF THE MIXTURE. Complot

 = 0.0 - ON INPUT WILL BE INTERPRETED AS 1.0 Complot

 (WITH THIS CONVENTION THE USER NEED ONLY Complot

 INPUT MULTIPLICATION FACTORS IF THEY ARE Complot

 NOT 1.0). Complot

 \*UP TO 100 MAT OR ZA EQUIVALENCES ARE Complot

 ALLOWED. Complot

 \*THE LIST IS TERMINATED BY A BLANK LINE. Complot

 \*A ZERO INPUT FIELD IMPLIES ALL. TO EQUATE Complot

 A GIVEN MT NUMBER TO ANOTHER MT NUMBER YOU Complot

 NEED MERELY SPECIFY ZA=0 ON INPUT. Complot

 \*NOTE, IN ALL CASES THE TITLE AT TOP OF PLOT Complot

 WILL ONLY INDENTIFY MASTER (ZA,MF,MT). THE Complot

 USER INPUT TITLES MUST BE USED TO IDENTIFY Complot

 THE SECOND REACTION (SEE, EXAMPLE INPUT 4 Complot

 BELOW). Complot

 Complot

 EXAMPLE DEFINITION OF PLOTTER Complot

 ----------------------------- Complot

 2015 - WARNING - THE FOLLOWING DESCRIPTION IS OUT-OF-DATE. Complot

 TODAY THE DIMENSIONS OF THE PLOTTER ARE IN INCHES. Complot

 Complot

 THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING Complot

 USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING) Complot

 WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES Complot

 HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THE PLOTTING AREA Complot

 DEFINED ON THE FIRST INPUT LINE MAY BE SUBDIVIDED INTO ANY NUMBER Complot

 OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE, TO PRODUCE A Complot

 SERIES OF FRAMES EACH CONTAINING 3 PLOTS IN THE X DIRECTION AND Complot

 2 PLOTS IN THE Y DIRECTION (6 PLOTS PER FRAME) COLUMN 45-55 OF Complot

 THE FIRST INPUT LINE SHOULD BE 3 AND COLUMNS 56-66 SHOULD BE 2. Complot

 Complot

 IF THE LOCAL PLOTTER USES DIMENSIONS OF INCHES IN ORDER TO OBTAIN Complot

 10 X 10 INCH FRAMES WITH 3 X 2 PLOTS PER FRAME THE FIRST INPUT Complot

 LINE SHOULD BE, Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 Complot

 IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME Complot

 PHYSICAL SIZE PLOT MAY BE OBTAINED IF THE FIRST INPUT LINE IS, Complot

 Complot

 0.0 254.0 0.0 254.0 3 2 Complot

 Complot

 FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE Complot

 PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL Complot

 IN ALL CASES INDICATE 10 X 10 INCH PLOTS WITH ONLY 1 PLOT PER Complot

 FRAME. Complot

 Complot

 IN THE FOLLOWING EXAMPLES IN ALL CASES THESE OPTIONS WILL BE USED, Complot

 1) DASHED GRID - COLUMNS 12-22 OF SECOND INPUT LINE = 1 Complot

 2) NO BORDER - COLUMNS 23-33 OF SECOND INPUT LINE = 0 Complot

 3) LINE THICKNESS - COLUMNS 34-44 OF SECOND INPUT LINE = -2 Complot

 4) OUTPUT MODE - COLUMNS 45-55 OF SECOND INPUT LINE = 3 Complot

 5) FIRST PLOT NUMBER - COLUMNS 56-66 OF SECOND INPUT LINE = 1 Complot

 Complot

 EXAMPLE INPUT 1 Complot

 --------------- Complot

 RETRIEVE MATS 1023, 1056 AND 1065 THROUGH 1072, MT = 1 AND 2 Complot

 (TOTAL AND ELASTIC) FROM THE FIRST INPUT FILE AND COMPARE TO Complot

 ANY SECTION FROM THE SECOND FILE THAT HAS THE SAME ZA/MF/MT. ONLY Complot

 COMPARE DATA OVER THE ENERGY RANGE 0.1 EV TO 1 KEV. IDENTIFY Complot

 THE TWO SETS OF DATA AS ENDF/B-V AND ENDF/B-IV, RESPECTIVELY. Complot

 ONLY PLOT THOSE REACTIONS WHICH DIFFER AT ONE OR MORE ENERGIES Complot

 BY MORE THAN 1 PER-CENT (NOTE, 1 PER-CENT = 0.01 AS INPUT Complot

 FRACTION). NO EQUIVALENT REACTIONS ARE SPECIFIED. FILERNAMES Complot

 ARE STANDARD (THSE CAN EITHER BE EXPLICITLY INCLUDED, OR SIMPLY Complot

 LEFT BLANK). Complot

 Complot

 THE FOLLOWING 12 INPUT LINES ARE REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 ENDFB.IN1 Complot

 ENDFB.IN2 Complot

 0 1 0 -2 3 1 Complot

 0.01 0.0 Complot

 ENDF/B-V DATA (STANDARD) Complot

 ENDF/B-IV DATA Complot

 1023 3 1 0.1 3 2 1000.0 0 Complot

 1056 3 1 0.1 3 2 1000.0 0 Complot

 1065 3 1 0.1 1072 3 2 1000.0 0 Complot

 (TERMINATES REQUEST LIST) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 Complot

 EXAMPLE INPUT 2 Complot

 --------------- Complot

 TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1, Complot

 EXCEPT TO RETRIEVE U-235, U-238 AND PU-239 THROUGH PU-242 THE Complot

 FOLLOWING 12 INPUT LINES ARE REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 ENDFB.IN1 Complot

 ENDFB.IN2 Complot

 1 1 0 -2 3 1 Complot

 0.01 0.0 Complot

 ENDF/B-V DATA (STANDARD) Complot

 ENDF/B-IV DATA Complot

 92235 3 1 0.1 3 2 1000.0 0 Complot

 92238 3 1 0.1 3 2 1000.0 0 Complot

 94239 3 1 0.1 94242 3 2 1000.0 0 Complot

 (TERMINATES REQUEST LIST) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 EXAMPLE INPUT 3 Complot

 --------------- Complot

 TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1, Complot

 EXCEPT TO RETRIEVE AND COMPARE ALL MATS THE FOLLOWING 10 INPUT Complot

 LINES ARE REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 ENDFB.IN1 Complot

 ENDFB.IN2 Complot

 0 1 0 -2 3 1 Complot

 0.01 0.0 Complot

 ENDF/B-V DATA (STANDARD) Complot

 ENDF/B-IV DATA Complot

 1 1 1 0.0 999999999 0.0 0 Complot

 (TERMINATES REQUEST LIST) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 NOTE, ZERO LOWER AND UPPER Complot

 MAT LIMITS INDICATES NO LIMIT. Complot

 Complot

 EXAMPLE INPUT 4 Complot

 --------------- Complot

 RETRIEVE U-235 AND EQUATE THE FISSION CROSS SECTION (MT=18) ON Complot

 THE MASTER FILE TO CAPTURE (MT=102) ON THE SECOND FILE. PLOT Complot

 THE CAPTURE, FISSION AND CAPTURE TO FISSION RATIO OVER THE ENERGY Complot

 RANGE 0.0253 EV TO 1 KEV. THE FOLLOWING 11 INPUT LINES ARE Complot

 REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 ENDFB.IN1 Complot

 ENDFB.IN2 Complot

 1 1 0 -2 3 1 Complot

 0.01 0.0 Complot

 FISSION Complot

 CAPTURE Complot

 92235 3 18 0.0253 92235 3 18 1000.0 0 Complot

 (TERMINATES REQUEST LIST) Complot

 92235 3 18 92235 3102 (MULTIPLICATION OF 1.0 INFERRED) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 Complot

 EXAMPLE INPUT 5 Complot

 --------------- Complot

 IN DIFFERENT VERSIONS OF THE ENDF/B FORMAT DIFFERENT MT NUMBERS Complot

 ARE ASSIGNED TO THE SAME REACTION. FOR EXAMPLE, IN ENDF/B-V AND Complot

 EARLIER VERSIONS OF ENDF/B THE PHOTOELECTRIC CROSS SECTION IS Complot

 MT=602, WHILE IN ENDF/B-VI IT IS MT=522. IN ORDER TO COMPARE Complot

 ASSUMING THAT THE MASTER IS ENDF/B-VI AND THE OTHER ENDF/B FILE Complot

 IS ENDF/B-V (OR EARLIER) YOU MAY EQUATE MT=522 TO 602. Complot

 Complot

 WHEN COMPARING PHOTOELECTRIC CROSS SECTIONS WE EXPECT THERE TO BE Complot

 LARGE DIFFERENCES NEAR EDGES, SINCE IT IS UNLIKELY THAT TWO Complot

 INDEPENDENT EVALUATIONS USE EXACTLY THE SAME EDGE ENERGIES. FROM Complot

 A PRACTICAL VIEWPOINT THESE DIFFERENCES ARE NOT IMPORTANT IF THEY Complot

 ONLY OCCUR OVER NARROW ENERGY RANGES NEAR ENERGIES. HOWEVER THESE Complot

 LARGE DIFFERENCES MAY MAKE IT DIFFICULT TO SEE DIFFERENCES OVER Complot

 OTHER ENERGY RANGES, WHICH MAY BE IMPORTANT. IN ORDER TO BE ABLE Complot

 TO SEE IMPORTANT DIFFERENCES IN THE FOLLOWING COMPARISON WE WILL Complot

 CONSTRAIN THE PLOTTED RATIO TO THE RANGE ABOUT 0.9 TO 1.1 IN Complot

 ORDER TO BE ABLE TO SEE DIFFERENCES OF UP TO 10 PER-CENT. WE WILL Complot

 DO THIS BY SPECIFYING A MAXIMUM RATIO OF 1.1, WHICH WILL IN TURN Complot

 DEFINE A MINIMUM RATIO OF 1/1.1, OR ABOUT 0.9. Complot

 Complot

 IN ORDER TO COMPARE THE PHOTOELECTRIC CROSS SECTION FOR ALL Complot

 MATERIALS THE FOLLOWING 11 INPUT LINES ARE REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 ENDFB.IN1 Complot

 ENDFB.IN2 Complot

 0 1 0 -2 3 1 Complot

 0.01 1.1 Complot

 ENDF/B-VI Complot

 ENDF/B-V Complot

 023522 999923522 0 Complot

 (TERMINATES REQUEST LIST) Complot

 023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 Complot

 EXAMPLE INPUT 6 Complot

 --------------- Complot

 THE SAME EXAMPLE AS ABOVE, EXCEPT THAT DIFFERENT FILENAMES WILL Complot

 BE USED TO READ THE DATA FROM A FILE TREE STRUCTURE. THE FOLLOWING Complot

 11 INPUT LINES ARE REQUIRED. Complot

 Complot

 0.0 10.0 0.0 10.0 3 2 Complot

 /Evaluated/ENDFB6/PHOTON.IN Complot

 /Evaluated/ENDFB5/PHOTON.IN Complot

 0 1 0 -2 3 1 Complot

 0.01 1.1 Complot

 ENDF/B-VI Complot

 ENDF/B-V Complot

 023522 999923522 0 Complot

 (TERMINATES REQUEST LIST) Complot

 023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 Complot

 EXAMPLE INPUT 7 Complot

 --------------- Complot

 THE OUTPUT FOR ALL OF THE ABOVE EXAMPLES ARE ORIENTED WITH X Complot

 HORIZONTAL AND Y VERTICAL. TO CHANGE THE ORIENTATION OF THE PLOTS Complot

 YOU NEED MERELY SPECIFY A NEGATIVE UPPER X LIMIT OF THE SIZE OF Complot

 THE PLOTS ON THE FIRST INPUT LINE. Complot

 Complot

 THE FOLLOWING EXAMPLE IS EXACTLY THE SAME AS THE ABOVE EXAMPLE, Complot

 EXCEPT THAT THE ORIENTATION OF THE PLOTS HAS BEEN CHANGED. THE Complot

 FOLLOWING 11 INPUT LINES ARE REQUIRED. Complot

 Complot

 0.0 -10.0 0.0 10.0 3 2 Complot

 /Evaluated/ENDFB6/PHOTON.IN Complot

 /Evaluated/ENDFB5/PHOTON.IN Complot

 0 1 0 -2 3 1 Complot

 0.01 1.1 Complot

 ENDF/B-VI Complot

 ENDF/B-V Complot

 023522 999923522 0 Complot

 (TERMINATES REQUEST LIST) Complot

 023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot

 (TERMINATES EQUIVALENCE LIST) Complot

 Complot

 ===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Complot

 Complot

 NON-INTERACTIVE Complot

 ------------------------------------------------------------------ Complot

 THIS PROGRAM USES A SIMPLE CALCOMP LIKE INTERFACE INVOLVING Complot

 ONLY 5 SUBROUTINES, Complot

 Complot

 STARPLOT - INITIALIZE PLOTTER Complot

 NEXTPLOT - CLEAR SCREEN FOR NEXT PLOT Complot

 ENDPLOTS - TERMINATE PLOTTING Complot

 Complot

 PLOT(X,Y,IPEN) - DRAW OR MOVE FROM LAST LOCATION TO (X,Y), Complot

 END OF CURRENT PLOT OR END OF PLOTTING. Complot

 IPEN = 2 - DRAW Complot

 = 3 - MOVE Complot

 Complot

 PEN(IPEN) - SELECT COLOR. Complot

 IPEN- COLOR = 1 TO N (N = ANY POSITIVE INTEGER) Complot

 Complot

 BOXCOLOR(X,Y,IFILL,IBORDER) - FILL A RECTANGLE WITH COLOR Complot

 X,Y = DEFINE THE CORNERS OF THE BOX Complot

 IFILL = COLOR TO FILL BOX WITH Complot

 IBORDER = COLOR OF BORDER OF BOX Complot

 Complot

 INTERACTIVE Complot

 ------------------------------------------------------------------ Complot

 THIS PROGRAM INCLUDES AN INTERACTIVE INTERFACE FOR USE WITH A Complot

 MOUSE. THE INTERFACE INVOLVES 2 SUBROUTINE, Complot

 Complot

 INTERACT(MYACTION) - WHETHER OR NOT INTERACTION Complot

 MYACTION = 0 - NO (RETURNED BY INTERACT) Complot

 = 1 - YES (RETURNED BY INTERACT) Complot

 Complot

 MOUSEY(IWAY,XI,YI,IWAY1,IWAY2) - READ POSITION OF MOUSE Complot

 IWAY = 0 - NO INPUT Complot

 = 1 - LEFT BUTTON Complot

 = 2 - MIDDLE BUTTON Complot

 = 3 - RIGHT BUTTON Complot

 = 4 - KEYBOARD INPUT Complot

 XI = X POSITION IN LOCAL UNITS Complot

 YI = Y POSITION IN LOCAL UNITS Complot

 IWAY1 = MINIMUM ALLOWABLE IWAY Complot

 IWAY2 = MAXIMUM ALLOWABLE IWAY Complot

 Complot

 AS USED BY THIS PROGRAM IWAY1 = 1 Complot

 IWAY2 = 4 Complot

 KEYBOARD INPUT (IWAY=4) MEANS NO ZOOMED PLOT REQUESTED. Complot

 MOUSE INPUT (IWAY=1 TO 3) MEANS A ZOOMED PLOT IS REQUESTED. Complot

 MOUSEY WILL BE CALLED ONCE TO SEE IF A ZOOMED PLOT IS REQUESTED. Complot

 IF IT IS XI WILL BE USED TO DEFINE ONE X (E.G., ENERGY) LIMIT OF Complot

 THE ZOOMED PLOT. MOUSEY WILL THEN BE CALLED A SECOND TIME TO Complot

 DEFINE A SECOND XI TO DEFINE THE OTHER X LIMIT OF THE ZOOMED Complot

 PLOT. Complot

 Complot

 IF YOU DO NOT WANT INTERACTION YOU SHOULD INCLUDE THE FOLLOWING Complot

 SUBROUTINES IN YOUR GRAPHIC INTERFACE, Complot

 Complot

 SUBROUTINE INTERACT(MYACTION) Complot

 MYACTION=0 Complot

 RETURN Complot

 END Complot

 SUBROUTINE MOUSEY(IWAY,XI,YI,IWAY1,IWAY2) Complot

 IWAY=4 Complot

 XI=0.0 Complot

 YI=0.0 Complot

 RETURN Complot

 END Complot

 Complot

 ALTERNATIVE INTERACTIVE Complot

 ------------------------------------------------------------------ Complot

 IF YOU DO NOT HAVE A MOUSE BUT WOULD STILL LIKE TO INTERACTIVE Complot

 INPUT YOU CAN REPLACE SUBROUTINE ACTION IN THIS PROGRAM. Complot

 Complot

 AS DISTRIBUTED SUBROUTINE ACTION USES A MOUSE TO DEFINE LOWER Complot

 AND UPPER ENERGY (OR X) LIMITS WHICH ARE USED TO PRODUCE THE Complot

 NEXT PLOT. A CALL TO ACTION IS OF THE FORM, Complot

 Complot

 CALL ACTION(KACTV,XACT1,XACT2) Complot

 Complot

 KACTV = 0 - NO INTERACTIVE INPUT Complot

 = 1 - INTERACTIVE INPUT Complot

 XACT1 = LOWER ENERGY LIMIT Complot

 XACT2 = UPPER ENERGY LIMIT Complot

 Complot

 IF THERE IS NO INTERACTIVE INPUT THE PROGRAM WILL PROCEED TO THE Complot

 NEXT PLOT REQUESTED BY NON-INTERACTIVE INPUT. Complot

 Complot

 IF THERE IS INTERACTIVE INPUT THE PROGRAM WILL USE XACT1 AND Complot

 XACT2 TO DEFINE THE ENERGY LIMITS OF THE NEXT PLOT USING THE Complot

 SAME DATA AS APPEARED ON THE LAST PLOT. AS WITH NON-INTERACTIVE Complot

 INPUT, IF YOU SELECT AN ENERGY RANGE WHERE THE MAXIMUM DIFFERENCE Complot

 IS LESS THAN THAT SPECIFIED BY INPUT NO PLOT WILL BE PRODUCED Complot

 AND THE CODE WILL PROCEED TO THE NEXT PLOT REQUESTED BY Complot

 NON-INTERACTIVE INPUT. Complot

 Complot

 YOU CAN REPLACE SUBROUTINE ACTION FOLLOWING THE ABOVE CONVENTIONS Complot

 TO ALLOW INTERACTION VIA DIRECT READ OF X LIMITS, LIGHTPEN OR Complot

 WHATEVER FACILITIES YOU HAVE AVAILABLE. Complot

 Complot

 INTERFACING Complot

 ------------------------------------------------------------------ Complot

 IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH Complot

 DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE Complot

 THE USER TO WRITE 5 SUBROUTINES DESCRIBED ABOVE AND TO THEN CALL Complot

 THE LOCAL EQUIVALENT ROUTINES. Complot

 Complot

 COLOR PLOTS Complot

 ------------------------------------------------------------------ Complot

 TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED Complot

 TO SELECT ONE OF THE AVAILABLE COLORS. WHEN RUNNING ON A MAINFRAME Complot

 USING AN IBM GRAPHICS TERMINAL OR ON AN IBM-PC USING A HEWLETT- Complot

 PACKARD PLOTTER THE GRAPHICS INTERFACE (DESCRIBED ABOVE) WILL Complot

 PRODUCE COLOR PLOTS. Complot

 Complot

 BLACK AND WHITE PLOTS Complot

 ------------------------------------------------------------------ Complot

 WHEN PRODUCING BLACK AND WHITE HARDCOPY ON A MAINFRAME THE USER Complot

 SHOULD ADD A DUMMY SUBROUTINE PEN TO THE END OF THE PROGRAM TO Complot

 IGNORE ATTEMPTS TO CHANGE COLOR. ADD THE FOLLOWING SUBROUTINE, Complot

 Complot

 SUBROUTINE PEN(IPEN) Complot

 RETURN Complot

 END Complot

 Complot

 CHARACTER SET Complot

 ------------------------------------------------------------------ Complot

 THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE Complot

 CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN Complot

 STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER Complot

 AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF Complot

 ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL Complot

 SYMBOLS. Complot

 Complot

 THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO Complot

 DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS Complot

 OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY Complot

 MODIFY THIS TABLE. Complot

 Complot

 CONTROL CHARACTERS Complot

 ------------------------------------------------------------------ Complot

 IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL Complot

 HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE Complot

 CURRENTLY CONTAINS 4 CONTROL CHARACTERS, Complot

 Complot

 PEN POSITION = 0 Complot

 ---------------- Complot

 SHIFT THE NEXT PRINTED CHARACTER BY X AND Y. 3 CONTROL CHARACTERS Complot

 ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW Complot

 SHIFTING. Complot

 Complot

 { = SHIFT UP (FOR SUPERSCRIPTS..............X= 0.0, Y= 0.5) Complot

 } = SHIFT DOWN (FOR SUBSCRIPTS..............X= 0.0, Y=-0.5) Complot

 \ = SHIFT LEFT 1 CHARACTER (FOR BACKSPACE...X=-1.0, Y= 0.0) Complot

 Complot

 PEN POSITION =-1 Complot

 ---------------- Complot

 SELECT THE NEXT PRINTED CHARACTER FROM THE ALTERNATE CHARACTER Complot

 SET. AT PRESENT THIS CONTROL CHARACTER IS, Complot

 Complot

 ] = SWITCH TO ALTERNATE CHARACTER SET Complot

 Complot

 THESE 4 CONTROL CHARACTERS ARE ONLY DEFINED BY THE VALUE OF THE Complot

 PEN POSITION IN THE SOFTWARE CHARACTER TABLE (I.E., THEY ARE NOT Complot

 HARD WIRED INTO THIS PROGRAM). AS SUCH BY MODIFYING THE SOFTWARE Complot

 CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL Complot

 CHARACTERS TO MEET SPECIFIC NEEDS. Complot

 Complot

 THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE Complot

 SPECIAL EFFECTS. FOR EXAMPLE, TO PLOT SUBSCRIPT 5, B, SUPERSCRIPT Complot

 10 USE THE STRING, Complot

 Complot

 }5B{1{0 Complot

 Complot

 TO PLOT B, SUBSCRIPT 5 AND SUPERSCRIPT 10 WITH THE 5 DIRECTLY Complot

 BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO Complot

 POSITION THE 1 DIRECTLY ABOVE THE 5 USING THE STRING, Complot

 Complot

 B}5\{1{0 Complot

 Complot

 TO PLOT UPPER CASE GREEK GAMMA FOLLOWED BY THE WORD TOTAL (I.E., Complot

 RESONANCE TOTAL WIDTH) USE THE STRING. Complot

 Complot

 ]G TOTAL Complot

 Complot

 NOTE, WHEN THESE CONTROL CHARACTERS ARE USED THEY ONLY EFFECT THE Complot

 NEXT 1 PRINTED CHARACTER (SEE, ABOVE EXAMPLE OF PLOTTING SUPER- Complot

 SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE Complot

 1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP Complot

 CONTROL CHARACTERS WERE USED IN COMBINATION). Complot

 Complot

 IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER Complot

 YOU CAN MODIFY THE SOFTWARE CHARACTER TABLE TO USE ANY OTHER 4 Complot

 CHARACTERS THAT YOU DO NOT NORMALLY USE IN CHARACTER STRINGS (FOR Complot

 DETAILS SEE THE SOFTWARE CHARACTER TABLE). Complot

 Complot

 STANDARD/ALTERNATE CHARACTER SETS Complot

 ------------------------------------------------------------------ Complot

 THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH Complot

 ARE A STANDARD SET (ALL CHARACTERS ON AN IBM KEYBOARD) AND AN Complot

 ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL Complot

 CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET Complot

 PUT A RIGHT BRACKET CHARACTER (]) BEFORE A CHARACTER (SEE THE Complot

 ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS Complot

 CONTROL CHARACTER WILL ONLY EFFECT THE NEXT 1 PLOTTED CHARACTER. Complot

 Complot

 SUB AND SUPER SCRIPTS Complot

 ------------------------------------------------------------------ Complot

 TO DRAW SUBSCRIPT PRECEED A CHARACTER BY }. TO DRAW SUPERSCRIPT Complot

 PRECEED A CHARACTER BY { (SEE THE ABOVE EXAMPLE AND THE SOFTWARE Complot

 CHARACTER TABLE FOR DETAILS). THESE CONTROL CHARACTER WILL ONLY Complot

 EFFECT THE NEXT 1 PLOTTED CHARACTER. Complot

 Complot

 BACKSPACING Complot

 ------------------------------------------------------------------ Complot

 TO BACKSPACE ONE CHARACTER PRECEED A CHARACTER BY \ (SEE, THE Complot

 ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS Complot

 CONTROL CHARACTER WILL PERFORM A TRUE BACKSPACE AND WILL EFFECT Complot

 ALL FOLLOWING CHARACTERS IN THE SAME CHARACTER STRING. Complot

 Complot

 PLOT DIMENSIONS Complot

 --------------- Complot

 ARE DEFINED BY USER INPUT. INTERNALLY THE PROGRAM WILL CREATE A Complot

 PLOT IN APPROXIMATELY A4 OR 8-1/2 BY 11 INCH FORMAT. DURING Complot

 OUTPUT THE PLOT IS TRANSFORMED TO THE UNITS (INCHES, CENTIMETERS, Complot

 MILLIMETERS, WHATEVER) OF THE PLOTTER BEING USED AND OUTPUT. Complot

 Complot

 ===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Complot

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