**=======================================================================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 INTERFACECOMPLOT**

**(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 PLOTTERCOMPLOT**

**\*WARNING..INPUT PARAMETERS FROM BEENCOMPLOT**

**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 ANYTHINGCOMPLOT**

**CRAZY. COMPLOT**

**\*FORTRAN-77/FORTRAN-H COMPATIBLE COMPLOT**

**\*SPECIAL ENDF/B MATERIAL DEFINITIONSCOMPLOT**

**(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 DETERMINECOMPLOT**

**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 INPUTCOMPLOT**

**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 CHANGECOMPLOT**

**\*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 dataCOMPLOT**

**\*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-positiveCOMPLOT**

**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 = see change search for 2015-2COMPLOT**

**VERS. 2015-3 (Oct. 2015) \*Allow multiple LRF=7 regions plus COMPLOT**

**unreslved region - earlier assumed COMPLOT**

**LRF=7 never used unrsesolved. COMPLOT**

**VERS. 2017-1 (May 2017) \*For MF=2 use MT=151 to define COMPLOT**

**Unresolved Resonance Region (URR). COMPLOT**

**Ignore NJOY MT=152 and 153. COMPLOT**

**\*All floating input parameters changedCOMPLOT**

**to character input + IN9 conversion. COMPLOT**

**\*Added MF=4 Legendre Coefficient COMPLOT**

**Comparison: f1 through f6 COMPLOT**

**Vers. 2018-1 (Jan. 2018) \*Doubled in core storage to 1,200,000.COMPLOT**

**\*Replaced Q MeV by MT= at top of plotsCOMPLOT**

**(Q value in ENDF is now only defined COMPLOT**

**in MF=3, making it difficult for allCOMPLOT**

**other MF now treated by this code) COMPLOT**

**\*Initial Linear X scaling for MF=1 COMPLOT**

**(nu-bar) and MF=4 (Legendre) = COMPLOT**

**this can be turned OFF by ZOOM COMPLOT**

**+ Unless energy range is requested = COMPLOT**

**allows MF=1 and 4 default Linear X COMPLOT**

**scaling to be turned off by input COMPLOT**

**parameters, i.e., by COMHARD COMPLOT**

**\*Zoom lower energy limit restricted COMPLOT**

**1.0d-5 eV - to lower zoom of linear COMPLOT**

**energy plots (otherwise cannot find COMPLOT**

**actual lower limit on plot). COMPLOT**

**\*Added NRO = energy dependent scatter COMPLOT**

**radius to reading FILE2 parameters COMPLOT**

**to define unresolved energy range. COMPLOT**

**\*Corrected energy dependent scatter COMPLOT**

**for all resonance types (see, above COMPLOT**

**remarks). COMPLOT**

**Vers. 2019-1 (June 2019) \*Additional Interpolation Law Tests COMPLOT**

**\*Checked Maximum Tabulated Energy to COMPLOT**

**insure it is the same for all MTs - COMPLOT**

**if not, print WARNING messages. COMPLOT**

**Vers. 2020-1 (Dec. 2020) \*Corrected Treatment of Threshold COMPLOT**

**cross sections, to include threshold COMPLOT**

**(Previously code only used positive COMPLOT**

**cross sections = skipped threshold) COMPLOT**

**\*Added isomeric state (m or n) to ZA COMPLOT**

**interpretation. COMPLOT**

**\*Increased MAXIZA to 100,000 from COMPLOT**

**10,000 to allow searching longer COMPLOT**

**ENDF data fils with many MATs = COMPLOT**

**NOT RECOMMENDED!!!! COMPLOT**

**Vers. 2021-1 (Jan. 2021) \*SHOW ALL = mouse click above the COMPLOT**

**plotting area. COMPLOT**

**\*Updated for FORTRAN 2018 COMPLOT**

**Vers. 2023-1 (Feb. 2023) \*Reduced page size from 2,400,000 to COMPLOT**

**120,000 COMPLOT**

**COMPLOT**

**2020-1 Acknowledgment COMPLOT**

**===================== COMPLOT**

**I thank Jean-Christophe Sublet (NDS, IAEA, Vienna, Austria) for COMPLOT**

**reporting the ERROR in COMPLOT (2019-1) that led to the update in COMPLOT**

**COMPLOT (2020-1) to correctly handle threshold reactions. 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**

**I thank Jean-Christophe Sublet (UKAEA) for contributing MAC COMPLOT**

**executables and Bojan Zefran (IJS, Slovenia) for contributing COMPLOT**

**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**

**Dermott E. Cullen COMPLOT**

**COMPLOT**

**PRESENT CONTACT INFORMATION COMPLOT**

**--------------------------- 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 COMPUTERCOMPLOT**

**INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE COMPLOT**

**OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECTCOMPLOT**

**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 PLOTTERCOMPLOT**

**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 IDENTIFYCOMPLOT**

**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 SETCOMPLOT**

**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 REACTIONSCOMPLOT**

**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 SECTIONCOMPLOT**

**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 SELECTORCOMPLOT**

**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-PLOTSCOMPLOT**

**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 BECOMPLOT**

**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 TABULATEDCOMPLOT**

**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 OVERCOMPLOT**

**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 NUMBERCOMPLOT**

**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 MIXEDCOMPLOT**

**ATOM BY USING A MULTIPLICATION FACTOR WHICHCOMPLOT**

**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 1.0COMPLOT**

**(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 PLOTCOMPLOT**

**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 FOLLOWINGCOMPLOT**

**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 = real\*4 X POSITION IN LOCAL UNITSCOMPLOT**

**YI = real\*4 Y POSITION IN LOCAL UNITSCOMPLOT**

**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 USEDCOMPLOT**

**TO SELECT ONE OF THE AVAILABLE COLORS. WHEN RUNNING ON A MAINFRAMECOMPLOT**

**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 SOFTWARECOMPLOT**

**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 OFCOMPLOT**

**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 TOCOMPLOT**

**DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERSCOMPLOT**

**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 THECOMPLOT**

**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**

**=======================================================================COMPLOT**