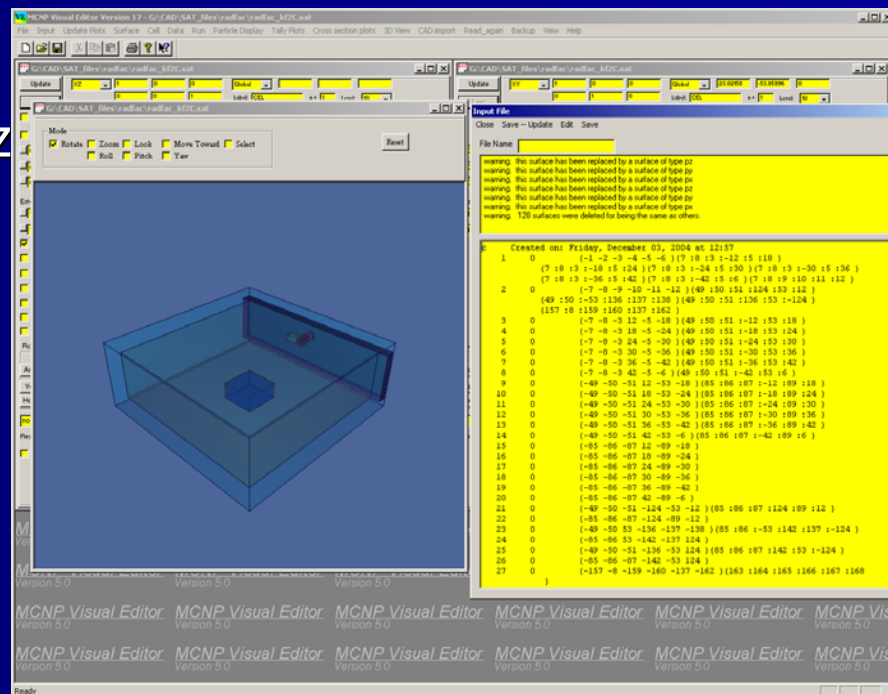


Wizards and Visualization Features for MCNP Geometries and Sources

*The American Nuclear Society's 14th Biennial Topical Meeting of the
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The Visual Editor Graphical User Interface for MCNP

- Display Geometries with 2D and 3D views
- Create geometries
 - Universes, fills, lattices
- Some support for data cards
 - Materials, transformations, importances
- Plot particle tracks
 - SDEF Source generation points
 - Collision points
 - KCODE source point generation
- Tally and Cross section plots
- CAD Import



How the Visual Editor works

- Visual C++ code is linked to the MCNP Fortran code.
- The Visual Editor Fortran modifications are now a part of the LANL Version 5 Fortran code.
- The C++ and Fortran share data and memory.



Purpose of the Visual Editor

- Make it easier to create MCNP input files.
- Generate input files faster with fewer errors.
- Saves time.
- Saves money.

Version 1.4 released to RSICC

Radiation Safety Information Computational Center
Oak Ridge National Laboratory

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MCNP5 1.40 and MCNPX 2.5.0 Now Available

The new MCNP/MCNPX package can now be ordered from RSICC. It includes both MCNP5 1.40 and MCNPX 2.5.0. It also includes all publicly-available data libraries supported by Los Alamos Group X-1 and a new version of VISED for use with MCNP5. The package is distributed only on one DVD and is available free to all approved requesters for a limited time.

See the code abstracts and data info page:

<http://rsicc.ornl.gov/codes/ccc/ccc7/ccc-730.html>

Click below and complete the online order form to request the package. If you are not registered as a RSICC user, or if your registration form needs updating, please do that first. Don't forget the last step in the ordering process, which is to print and fax (or mail) the software license and export control agreement. Your request will not be processed until these forms are received.

<http://rsicc.ornl.gov/rsiccnew/order.htm>

The package is distributed on a single DVD in Windows and UNIX formats. The executable-only package C00730MNYCP01 includes executables for PC Windows, PC Linux, some Unix systems and Mac OSX; MCNPDATA; test problems and the referenced documentation. The C00730MNYCP00 package includes the items listed above plus source codes, makefiles, build scripts, and some additional documentation. Export control regulations restrict the distribution of Fortran source code. If restrictions apply, RSICC will send the executable-only version. Please order the package you prefer, and we will honor your preference if possible.

Follow links to release notes for details on changes in the codes:

MCNP5
"MCNP 5.1.40 RSICC Release Notes," LA-UR-05-8617
<http://www-xdiv.lanl.gov/x5/MCNP/index.html>

MCNPX
"MCNPX Extensions - Version 2.5.0," LA-UR-05-8675

Free to all approved requesters

Complete Interface for MCNP

MCNP Visual Editor Version 17 - Vised25

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

D:\TEST DIR\buss13a

Update YZ 0 1 0 Global 0

Last 0 0 1 Label: CEL

Zoom Zoom out

Origin 0 0 0

Extent 100 100

Refresh Surf 12

Cell 18

Color Facets vwr Mesh Rect

Rotate about

D:\TEST DIR\buss13a

Update XY -0.7071066 0.7071069 0 Global -105.704

Last -0.7071069 -0.7071066 0 Label: CEL

Zoom Zoom out

Origin 0 0 -30

Extent 80 80

Refresh Surf 18

Cell 18

Color Facets vwr Mesh Rect

Rotate about

D:\TEST DIR\buss13a

Update XY 0.7071069 0.7071066 0 Global 1435.9538

Last -0.7071066 0.7071069 0 Label: CEL

Zoom Zoom out

Origin 0 0 0

Extent 100 100

Refresh Surf 18

Cell 18

Color Facets vwr Mesh Rect

Rotate about

D:\TEST DIR\buss13a

Update YZ 0 1 0 Global 0

Last 0 0 1 Label: CEL

Zoom Zoom out

Origin 0 0 0

Extent 100 100

Refresh Surf 18

Cell 18

Color Facets vwr Mesh Rect

Rotate about

D:\TEST DIR\buss13a

Update XZ 1 0 0 Global 133

Last 0 0 1 Label: CEL

Zoom Zoom out

Origin 0 0 0

Extent 100 100

Refresh Surf 18

Cell 18

Color Facets vwr Mesh Rect

Rotate about

Input File

Close Save--Update Edit Save

File Name

warning: plot plane coincident with surface 20
warning: plot plane coincident with surface 40
warning: plot plane coincident with surface 40
creating file inpr.sav
creating file inpr.sav

```
BUSS CASK -- SHIELD PLUG AND THERMAL SHIELD IN PLACE
c comment before cell 1
1 2 -7.8 (59 -1 -7 ):(-13 7 -8 ) $CASK TOP
c comment before cell 2
2 2 -7.8 (((-15 4 -2 -11 ):(1 -11 2 -7 -14 )):(13
(-1 :17 -18 :20 )):(17 :18 :11 :95 )):(108 -6 ):20 :
3 0 5 12 -1 -6
4 0 (-16 1 200 -20 ):(-204 -200 202 )
5 0 (((-21 ):(11 :15 :-4 :14 :10 )):(8 -13 -10
6 0 21
7 1 -19 -80 -22 30 u=1 $INNER CAPSULE SOURCE
8 2 -7.8 -80 (-32 -23 27 ):(-30 :31 :22 ) u=1 $INNER
9 0 (-28 -24 27 ):(32 :23 ) u=1 $void between c
10 2 -7.8 -80 (-25 -29 26 ):(28 :24 :-27 ) u=1 $OUTER
11 0 (-33 -35 36 ) trcl=1 fill=1 $capsule FILL
12 0 -3 -1 34 20 40 #11 #16 #19 #20 $void abov
#27
13 0 (-33 -35 36 ) trcl=2 fill=1
```

cross section plot
total photon cross section

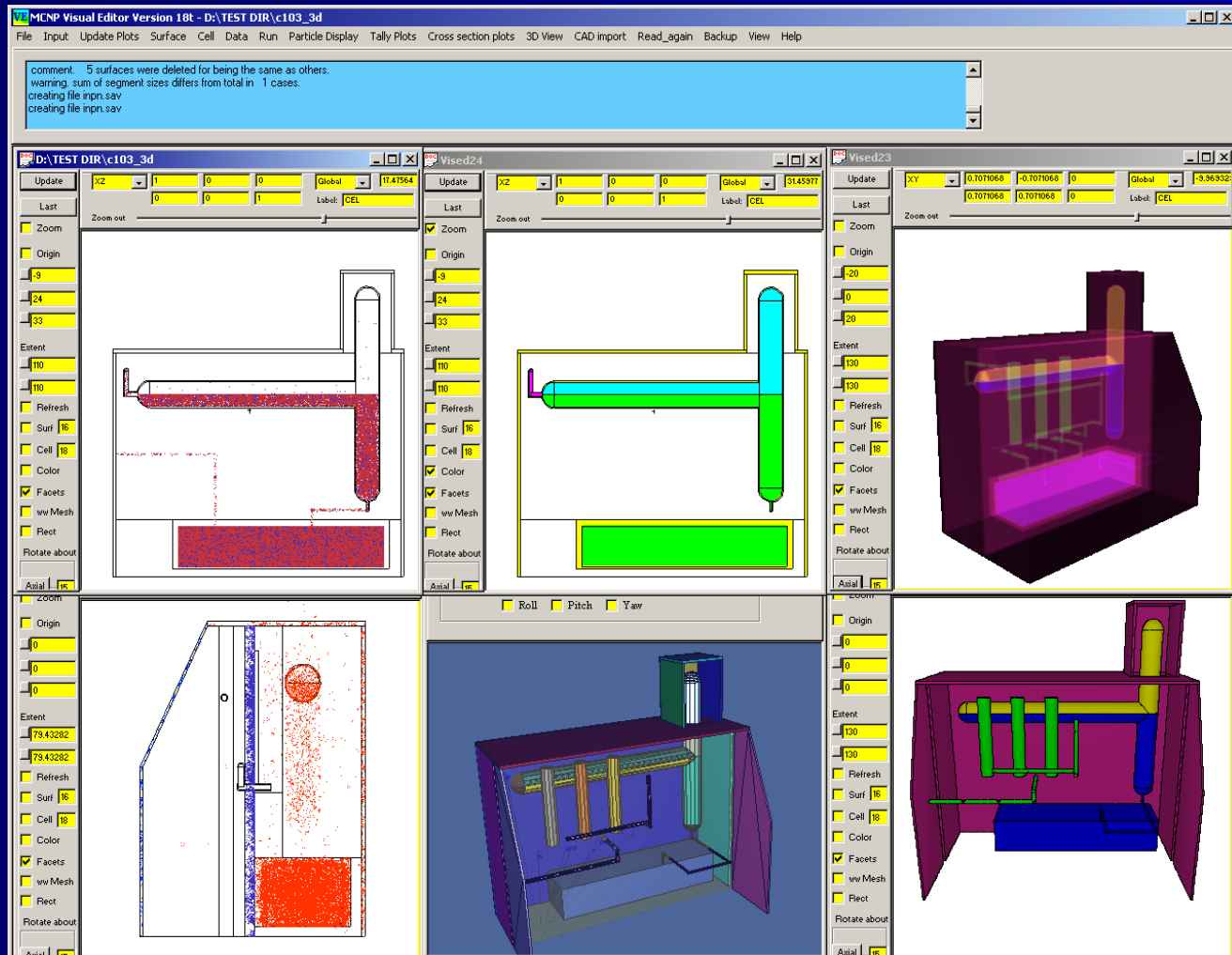
cross section (barns)
1. 10. 100. 1000. 10+4 10+5 10+6 10+7

0.0010.01 0.1 1. 10. 100. 1000. 10+4 10+5 10+6 10+7

energy (mev)

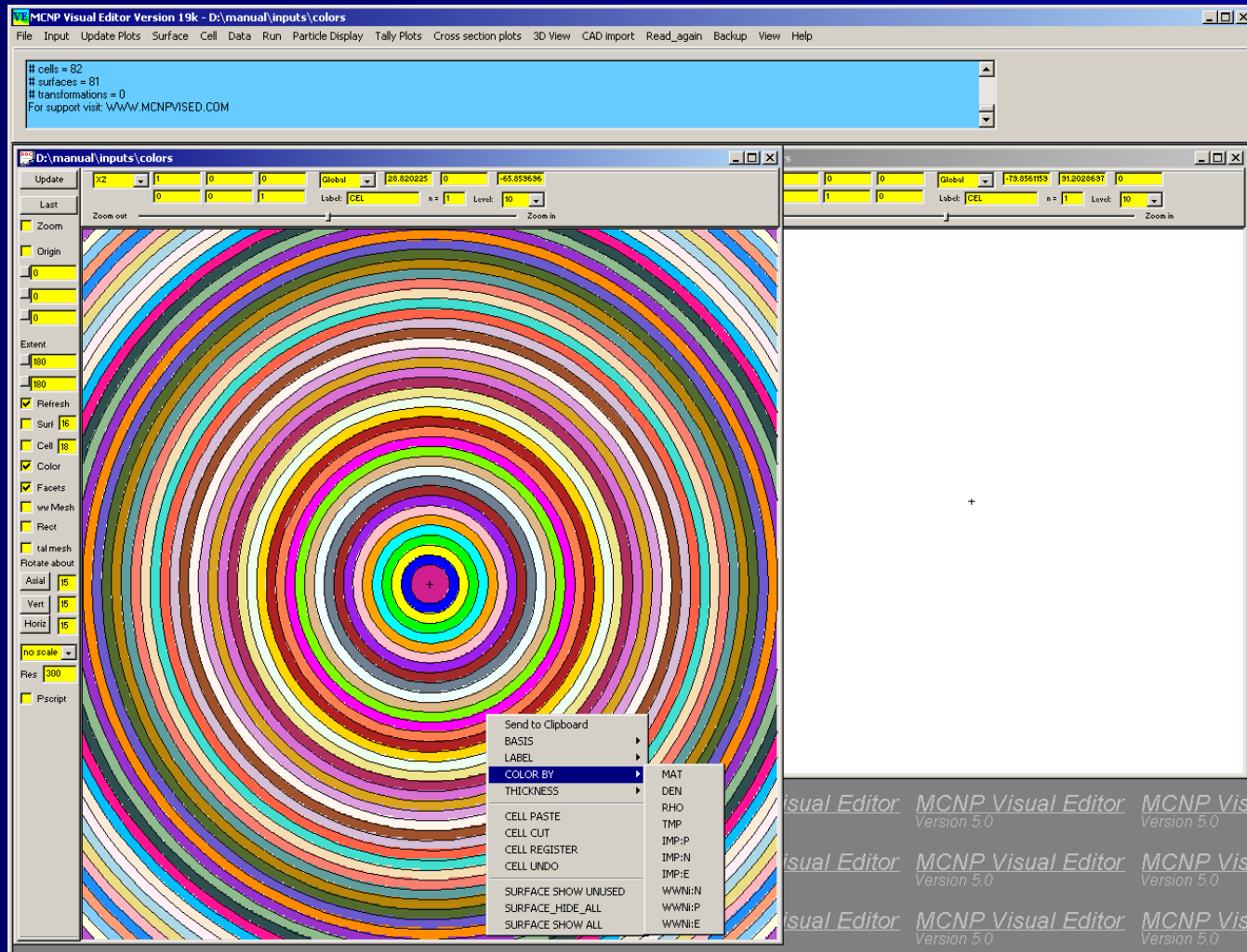
Ready

Complete Interface for MCNP



Visual Editor Capabilities

Colors



Visual Editor Capabilities

Input File Available

The image displays the MCNP Visual Editor Version 18t interface. The main window shows a 3D visualization of a container with a central vertical column of spheres. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View), a toolbar with 'Update', 'Zoom out', and 'Zoom in' buttons, and a 'Rotate about' section with 'Axial', 'Vert', and 'Horiz' options. The status bar at the bottom of the main window shows 'MCNP Visual Editor Version 5.0' repeated three times.

The 'Input File' window on the right displays the following code:

```

gamma dose rate calc for 1 ppm FULL SHIELD
1 0 -5 6 -1 3 -4 2 trcl=1 fill=1
2 0 -7 8 u=1 lat=1 $ROW 1
    fill=0:17 0:0 0:0
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 $ROW 1
3 1 -1.95 -9 (12 :-11 :20 )(14 :-13 :20 ) u=2
4 1 -1.95 -10 (12 :-11 :22 )(14 :-13 :22 ) u=2
5 1 -1.95 9 10 u=2
6 2 -22.5 -12 11 -20 (-15 :16 :19 ) u=2
7 2 -22.5 -14 13 -20 (-17 :18 :19 ) u=2
8 3 -9.6 -16 15 -19 u=2
9 3 -9.6 -18 17 -19 u=2
10 2 -22.5 -12 11 -22 (-15 :16 :21 ) u=2
11 2 -22.5 -14 13 -22 (-17 :18 :21 ) u=2
12 3 -9.6 -16 15 -21 u=2
13 3 -9.6 -18 17 -21 u=2
c
inner containment
21 231 -0.00122 ((((-6 52 -31 )):(52 -33 -53 ))(112 ))(-31 )
22 201 -8.03 51 -52 33 -34
23 201 -8.03 ((((-52 -34 -54 ))(33 :53 ))(112 ))(31 ))(-33 )
24 201 -8.03 51 -6 -119
c
outer containment
41 231 -0.00122 51 36 -64 -39
42 231 -0.00122 ((((-51 -35 -62 ))(52 :32 ))(-52 :34 :54 ))(112 ))(32 )
43 201 -8.03 ((((-36 64 -63 ))(62 :35 ))(112 ))(-31 )
44 236 -1 -52 65 36 -39
45 201 -8.03 -52 65 37 -38
46 201 -8.03 51 -40 38 -66
c
beyond outer containment and inside truck boundary
71 231 -0.00122 ((((-52 :36 :63 ))(52 :38 :-66 ))(66 :40 :-61 ))-113 73 -74
    75 -76 )(40 )
c
beyond truck and inside large sphere, above ground
72 231 -0.00122 (-71 :72 :-73 :74 :-75 :76 )77 -111
c
ground
73 221 -1.67 -77 -111
c
outside world
74 0 111
75 231 -0.00122 -112 119 -53 6
76 231 -0.00122 -119 6 -53 #1
77 201 -8.03 -54 53 -112 119 52
78 201 -8.03 -119 53 -54 52
79 231 -0.00122 -112 54 -62 119 52
80 231 -0.00122 -119 54 -62 52
81 201 -8.03 -112 62 -63 119 52
82 201 -8.03 -119 62 -63 52
85 231 -0.00122 -112 63 119 52 -76
86 231 -0.00122 -119 63 52 -76
87 231 -0.00122 31 52 -33 -53
88 231 -0.00122 -62 -32 34 52
90 231 -0.00122 (54 -34 -62 ))(-31 )52 112
91 201 -8.03 53 -31 -54 52 112
92 201 -8.03 33 -54 -34 52
93 231 -0.00122 (31 54 -34 -62 ))(-33 )52
94 231 -0.00122 33 54 -34 -62 52
96 201 -8.03 31 62 -63 -33 52
97 201 -8.03 33 62 -63 -34 52
98 201 -8.03 34 62 -62 -63 52
  
```

Visual Editor Capabilities

Surface Wizard

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D model of a complex geometry, likely a reactor core component, rendered in blue and green. The geometry consists of a central cylindrical structure with several internal components, including a central cylinder and several surrounding cylindrical and conical shapes. The model is set against a yellow background.

The **Surface Wizard** dialog box is open, showing the following options:

- 1. Select a surface type. Click the Help button for more information.
- Plane
- Sphere
- Cylinder
- Cone
- Quadratic
- Torus
- Points
- Macrobodyes

A diagram of a cylinder is shown with axes x, y, and z, and a radius R.

The **Surface** dialog box is also open, showing the following options:

- Activate
- Create New
- Scan
- Edit
- Create Like
- Units: Inches cm
- Scan Surface Facet
- Number: 327
- Type: pz
- Transformation: 0
- Reflective:
- Surface Delta:
- Static:
- D: 104.0675
- Dollar Comment:
- Comment Card:

The **Cell** dialog box is also open, showing the following options:

- Cell Mode: Activate
- Create New
- Scan
- Edit
- Create Like
- Undo
- Enable Highlights
- Select Facet Only
- Cell Description:
- Cell Number: 615
- Material: 0
- Density: 0
- Transformation: 0
- Universe: 0
- Fill:
- Dollar Comment:
- Comment Card:

Visual Editor Capabilities Materials

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D model of a reactor core with a central vertical tube and a horizontal tube. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View), a status bar, and several toolbars. A 'Materials' dialog box is open, showing a table of materials and their properties.

Materials Dialog Box:

| Number | Name | Density |
|--------|-----------------------|-----------|
| 1 | H 101 SY Slurry | 0.000000 |
| 2 | O air number fraction | 0.000000 |
| 3 | 304 SST | -7.880000 |
| 4 | H AQUEOUS | -1.080000 |
| 5 | H ORGANIC | -0.880000 |
| 6 | H FROMTANK | -1.080000 |

Material Library Dialog Box:

| Number | Standard Materials | Density |
|--------|----------------------------------|-----------|
| 204 | air (US S. Alm at sea level) | -0.001225 |
| 208 | aluminum | -2.699000 |
| 212 | beryllium metal | -1.850000 |
| 216 | beryllium oxide, BeO | -3.025000 |
| 220 | boron (natural) | -2.450000 |
| 224 | carbon steel with ENDF-VI | 7.872000 |
| 225 | carbon steel with ENDF-V Fe | 7.872000 |
| 228 | concrete (ordinary with ENDF-VI) | -2.350000 |
| 229 | concrete (ordinary, Fe ENDF-V) | -2.350000 |

Material Library Table:

| Number | User Materials | Density |
|--------|------------------|------------|
| 1 | Fuel 5% enriched | -10.000000 |
| 2 | Fuel 3% enriched | -10.000000 |

Material Library List:

| Mode: | Photon | Electron | Neutron Continuous | Neutron Other | Tally |
|-------|------------|--------------|--------------------|-----------------|-------------|
| 1 | Hydrogen | 19 Potassium | 37 Rubidium | 55 Cesium | 73 Tantalum |
| 2 | Helium | 20 Calcium | 38 Strontium | 56 Barium | 74 Tungsten |
| 3 | Lithium | 21 Scandium | 39 Yttrium | 57 Lanthanum | 75 Rhenium |
| 4 | Beryllium | 22 Titanium | 40 Zirconium | 58 Cerium | 76 Osmium |
| 5 | Boron | 23 Vanadium | 41 Niobium | 59 Praseodymium | 77 Iridium |
| 6 | Carbon | 24 Chromium | 42 Molybdenum | 60 Neodymium | 78 Platinum |
| 7 | Nitrogen | 25 Manganese | 43 Technetium | 61 Promethium | 79 Gold |
| 8 | Oxygen | 26 Iron | 44 Ruthenium | 62 Samarium | 80 Mercury |
| 9 | Flourine | 27 Cobalt | 45 Rhodium | 63 Europium | 81 Thallium |
| 10 | Neon | 28 Nickel | 46 Palladium | 64 Gadolinium | 82 Lead |
| 11 | Sodium | 29 Copper | 47 Silver | 65 Terbium | 83 Bismuth |
| 12 | Magnesium | 30 Zinc | 48 Cadmium | 66 Dysprosium | 84 Polonium |
| 13 | Aluminium | 31 Gallium | 49 Indonium | 67 Holmium | 85 Astatine |
| 14 | Silicon | 32 Germanium | 50 Tin | 68 Erbium | 86 Radon |
| 15 | Phosphorus | 33 Arsenic | 51 Antimony | 69 Thulium | 87 Francium |
| 16 | Sulfur | 34 Selenium | 52 Tellurium | 70 Ytterbium | 88 Radium |
| 17 | Chlorine | 35 Bromine | 53 Iodine | 71 Lutetium | 89 Actinium |
| 18 | Argon | 36 Krypton | 54 Xenon | 72 Hafnium | 90 Thorium |
| | | | | 91 Protactinium | |
| | | | | 92 Uranium | 92232 > |
| | | | | 93 Nept. | 92233 > |
| | | | | 94 Plut. | 92234 > |
| | | | | 95 Ameri | 92234.66c |
| | | | | 96 Curli | 92235 > |
| | | | | 97 Berke | 92234.65c |
| | | | | 98 Calfr | 92236 > |
| | | | | 99 Einste | 92234.60c |
| | | | | 100 Ferm | 92234.49c |
| | | | | | 92238 > |
| | | | | | 92239 > |
| | | | | | 92234.51c |
| | | | | | 92234.50c |
| | | | | | 92234.42c |

Visual Editor Capabilities

Importances

The screenshot shows the MCNP Visual Editor interface with the 'Importances' dialog box open. The dialog box contains the following information:

- Activate:** Mode: P
- Mode:** Neutron (selected), Photon, Electron
- Find Importance:** [] Default: 1
- Set Importance:** [] Factor: 1
- Scale Factor:** [] Start: [] Display: Decimal [] Integer

| Cell | Importance | Surface | Importance | Cell | Importance | Surface | Importance | Cell | Importance | Surface | Importance |
|------|------------|---------|------------|------|------------|---------|------------|------|------------|---------|------------|
| 1: | 0.25 | 13: | 1 | 26: | 1 | 37: | 6.8 | 49: | 20 | 60: | 6 |
| 2: | 0.5 | 14: | 1 | 27: | 1 | 38: | 11.56 | 50: | 10 | | 6 |
| 3: | 1 | 15: | 1 | 28: | 0.0125 | 39: | 19.652 | 51: | 1 | | 6 |
| 4: | 1 | 16: | 1 | 29: | 1 | 40: | 33.4084 | 52: | 1 | | 6 |
| 5: | 1 | 17: | 1 | 30: | 0.0125 | 41: | 56.79428 | 53: | 0.03125 | | 6 |
| 6: | 0 | 18: | 1 | 31: | 1 | 42: | 96.55028 | 54: | 0.0625 | | 6 |
| 7: | 0.0125 | 19: | 1 | 32: | 0.0125 | 43: | 164.1355 | 55: | 0.125 | | 6 |
| 8: | 0.0125 | 20: | 1 | 33: | 1 | 44: | 164.1355 | 56: | 0.25 | | 6 |
| 9: | 0.0125 | 21: | 1 | 34: | 0.0125 | 45: | 200 | 57: | 0.5 | | 6 |
| 10: | 0.0125 | 22: | 1 | 35: | 1 | 46: | 160 | 58: | 1 | | 7 |
| 11: | 1 | 23: | 1 | 36: | 4 | 47: | 80 | 59: | 0.03125 | | 7 |
| 12: | 1 | 24: | 1 | | | 48: | 40 | | 0.0625 | | 7 |

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

Visual Editor Capabilities

Transformations

The screenshot shows the MCNP Visual Editor interface. The main window displays a 3D model of a complex structure, likely a reactor core component, with various colored surfaces and volumes. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View, CAD import, Read_again, Backup, View, Help) and a status bar at the bottom.

The 'Transformations' dialog box is open, showing the following details:

- Transformation Mode:** Edit (selected), Create New, Create Like
- Transformation Number:** 18
- Origin:** Main (selected), Auxiliary
- Rotation Units:** Degrees (selected), Cosine Theta
- Basis:** X: 0.000000, Y: 0.000000, Z: 0.000000
- Comment Card:** Dollar Comment
- Transformations List:**

| Transformation Number | X | Y | Z |
|-----------------------|----------|----------|----------|
| 1 | 6.7352 | 6.7352 | -26.0001 |
| 2 | -6.7352 | -6.7352 | -26.0002 |
| 3 | 6.7352 | -6.7352 | -26.0003 |
| 4 | -6.7352 | 6.7352 | -26.0004 |
| 5 | 0.19.285 | -26.0005 | |
| 6 | 0.19.285 | -26.0006 | |
| 7 | -19.285 | 0 | -26.0007 |
| 8 | 19.285 | 0 | -26.0008 |
| 9 | 16.7726 | 0 | 26.0009 |

Visual Editor Capabilities Running

The screenshot displays the MCNP Visual Editor interface. At the top, the title bar reads "MCNP Visual Editor Version 19k - D:\TEST DIR\ipig". The menu bar includes "File", "Input", "Update Plots", "Surface", "Cell", "Data", "Run", "Particle Display", "Tally Plots", "Cross section plots", "3D View", "CAD import", "Read_again", "Backup", "View", and "Help".

The main window is divided into several sections:

- Command Window:** Shows "# transformations = 0" and "For support visit: WWW.MCNP/USED.COM".
- Update Panels:** Two panels for "xz" and "xy" views, each with "Update", "Zoom out", and "Zoom in" buttons. The "xz" panel shows "Global" and "Label: CEL" with various numerical inputs.
- Execute MCNP Dialog:** A central dialog box with "Close", "Run", and "Help" buttons. It contains fields for "NPS = 630134" and "CTME = 63.53125", and a "STOP" button. Below these are fields for "Options =", "inp=", "outp=", "runtpe=", "mctal=", "name=", "srctpe=", "wssar=", "rssar=", and "wwinp=".
- Output Window:** A large text area displaying MCNP execution output, including warnings about surfaces and materials, and comments about tallies.
- Control Panels:** On the left, there are panels for "Update", "Zoom", "Origin", "Extent", "Refresh", "Surf", "Cell", "Color", "Facets", "uv Mesh", "Rect", "tal mesh", "Rotate about", "Axial", "Vert", "Horiz", "no scale", "Res", and "Pscript".

At the bottom of the interface, there are six instances of the text "MCNP Visual Editor Version 5.0" arranged in two rows of three.

Visual Editor Capabilities

Tally Plots

The screenshot displays the MCNP Visual Editor Version 19k - Vised22 interface. The main window contains a text area with the following content:

```
# cells = 0  
# surfaces = 0  
# transformations = 0  
For support visit: WWW.MCNPVISED.COM
```

The interface includes several panels:

- Update Panel:** Shows 'Update' set to 'X2', 'Zoom out' at '0', and 'Extent' at '100'. It also has checkboxes for 'Refresh', 'Surf', 'Cell', 'Color', 'Facets', 'uv Mesh', 'Rect', 'tal mesh', and 'Rotate about'.
- Tally Plotting Panel:** Contains 'File Information' (Runtype, Metal, Filename, Dump No.), '2D options' (2D Plot, Tally number to, Independent, Dependent, Bln No.), 'Tally Animations' (Frequency, NPS, CTME, RUN, STOP, Animate), 'Tally fluctuation options' (Tally Fluctuation: Mean), 'KCODE options' (KCODE Plot: k (collision)), and 'Contour options' (First, Second Independent, Min, Max, Steps, Absolute/Percentage of min and max).
- Tally Titles Panel:** Allows setting 'Title line', 'X axis', 'Y axis', 'Z axis', 'Curve', and 'Sub' labels. It also has a 'Legend' dropdown and X/Y coordinates.
- Tally Options Panel:** Includes 'COPLOT' checkbox, 'Plot type' (Histogram), 'Axis' (Linklog), 'Normalization' (No normalization), 'Plot Thickness' (Thin), 'Scales' (With scales, no gn), and 'Include error bars' checkbox. It also has fields for X-axis, Y-axis, Z-axis, X factor, Y, Z, X Constant, and Y Constant.

At the bottom of the interface, there is a status bar with the text 'MCNP Visual Editor Version 5.0' repeated multiple times.

Visual Editor Capabilities

Cross Section Plots

The screenshot displays the MCNP Visual Editor interface. The main window shows a plot titled "cross section plot" with the subtitle "neutron total cross section". The y-axis is labeled "cross section (barns)" and ranges from 0.1 to 10000 on a logarithmic scale. The x-axis is labeled "energy (mev)" and ranges from 10⁻¹² to 10¹ on a logarithmic scale. The plot shows a curve that starts at approximately 10000 barns at 10⁻¹² MeV and decreases to about 1 barn at 10¹ MeV, with some noise at the high-energy end.

The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View, CAD import, Read_again, Backup, View, Help) and a toolbar. A status bar at the bottom indicates "Ready".

On the right side, there are several panels:

- A text area showing: `# transformations = 0`, `For support visit: WWW.MCNP/USED.COM`, `FOUND: xsdir in CURRENT DIRECTORY`
- A control panel with fields for "Update" (xz, 1, 0, 0), "Global" (222.067583, 0), and "97.5815735".
- A "List" panel with "Label: CEL", "n = 1", and "Level: 10".
- A "Zoom" panel with "Zoom out" and "Zoom in" buttons.
- A "Extent" panel with "100" and "100" values.
- A "Refresh" panel with "Surf" and "Cell" buttons.
- A "Color" panel with "Facets" and "Rect" checkboxes.
- A "Mesh" panel with "vu Mesh" and "tal mesh" checkboxes.
- A "Rotate about" panel with "Axial", "Vert", and "Horiz" buttons.
- A "no scale" panel with "Res" set to 300.
- A "Pscript" checkbox.

Below the plot, there is a table of nuclide cross sections:

| nuclides | mc | xs |
|----------|----|-----|
| 1001.60c | -1 | m 4 |
| 8016.60c | | |
| 5010.60c | | |

A "Cross Section Plotting" dialog box is open, showing the "Input Filename" as "in1.dat", "Nuclide" as "1", and "Total (N)" as "1". The "Particle Type" is set to "N". The dialog box contains a text area with the following text:

```
WAIT until xsact is done
Select Plot
xz inp = in1.dat
starting mcnp execution
warning: 2 materials had unnormalized fractions. print table 40.
warning: 2 of the materials appear at more than one density.
mcnp is done
xsact is done
mcplot is done
*****
```

Visual Editor Capabilities

Lattice Display/Creation

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D visualization of a hexagonal lattice structure with yellow spheres representing particles. The interface includes a menu bar, a toolbar, and several panels:

- Input File:** Contains the MCNP input file text, including cell definitions and lattice parameters.
- Cell Lattice:** A dialog box for configuring the lattice, showing parameters like Lattice Axis, Lattice Orientation, Pitch, Rows, and Axial Regions.
- Cell:** A panel for editing individual cells, showing cell number, material, density, and transformation.

```
9 0 507 -508 -503 504 -505 506 u=3 lat=2 $ROW 1
fill=-7:7 -7:7 0:0
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 $ROW 1
2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 2 $ROW 2
2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 2 $ROW 3
2 2 2 2 2 1 1 1 1 1 1 1 1 1 1 2 $ROW 4
2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 2 $ROW 5
2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 2 $ROW 6
2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 2 $ROW 7
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 $ROW 8
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 $ROW 9
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 $ROW 10
2 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 $ROW 11
2 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 $ROW 12
2 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 $ROW 13
2 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 $ROW 14
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 $ROW 15
10 2 -7.92 35 -36 -31.32 -33.34 (-45 :46 :41 :-42 :43 :-44 ) u=4
11 0 7 -8 45 -46 -41 42 -43 44 fill=3 u=4
```

Cell Lattice Parameters:

- Lattice Axis: Z
- Lattice Orientation: Horizontal P1
- Pitch: 0.81637
- Rows: 8
- Axial Regions: 1

Cell Description: 507 -508 -503 504 -505 506

Cell Properties: Cell Number: 0, Material: 0, Density: 0, Transformation: 0

Cell Comment: ROW 1

Visual Editor Capabilities

3D Ray Traced Imaging

MCNP Visual Editor Version 10i - D:\TEST DIR\buss3d

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

cells = 147
surfaces = 147
transformations = 17
For support visit: WWW.MCNPVISED.COM

D:\TEST DIR\buss3d

Update: XY [0.7071068] [0.7071068] [0] Global [-38.31348] 5.819568 [0]
Last: [-0.7071068] [0.7071068] [0] Label: CEL n = 1 Level: 10
Zoom out Zoom in

Zoom
 Origin
[0]
[0]
[0]
Extent: [75]
[75]
 Refresh
 Surf [18]
 Cell [18]
 Facets
 View Mesh
 Plot
Rotate about
Azial [-15]
Vert [15]
Horiz [15]
no scale
Res: 300
 Pscript

D:\TEST DIR\buss3d

Update: XY [0.7071068] [0.7071068] [0] Global [96.80412] 7.304965 [0]
Last: [-0.7071068] [0.7071068] [0] Label: CEL n = 1 Level: 10
Zoom out Zoom in

Zoom
 Origin
[0]
[0]
[0]
Extent: [75]
[75]
 Refresh
 Surf [18]
 Cell [18]
Color
 Facets
 View Mesh
 Plot
Rotate about
Azial [-15]
Vert [15]
Horiz [15]
no scale
Res: 3000
 Pscript

3D Ray Tracing

Close Normal 3D Plot Radiographic 3D Transparent 3D

NPS = 90000 CTME (secs) = 32.85938

Viewpoint: X 500 Y -500 Z 200

Enter cell numbers to show in 3d in text box below
Enter cell numbers or cell ranges separated by spaces or commas. For example, 1 4

1-4 7 11 13-27 36-58 95-147

3D data used to make the plot

Update Plot Basis Horizontal [0.707106] [0.707106] [0]
Vertical [-0.192451] [0.192450] [0.982250]

Ready

Visual Editor Capabilities

3D Ray Traced Imaging

MCNP Visual Editor Version 19k - D:\TEST DIR\ipig3D

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

cells = 49
surfaces = 71
transformations = 0
For support visit WWW.MCNPVED.COM

D:\TEST DIR\ipig3D

Update: Global
Last: Label: n = Level:
Zoom out Zoom in

Zoom
 Origin

Extent

 Refresh
 Surf
 Cell
 Color
 Facets
 w Mesh
 Rect
 tal mesh
Rotate about
Axial
Vert
Horiz

Res
 Pscript

D:\TEST DIR\ipig3D

Update: Global
Last: Label: n = Level:
Zoom out Zoom in

Zoom
 Origin

Extent

 Refresh
 Surf
 Cell
 Color
 Facets
 w Mesh
 Rect

3D Ray Tracing

Close Normal 3D Plot Radiographic 3D Transparent 3D Help

NPS = CTME (secs) =
Viewpoint: X Y Z
Enter cell numbers to show in 3d in text box below
Enter cell numbers or cell ranges separated by spaces or commas. For example, 1 4

3D data used to make the plot
 Update Plot Basis Horizontal
Vertical
Origin-Source Vector:
Radiography Options
 Darkness indicates ray length
Ray length corresponding to pure black
 Darkness indicates (ray length) * (cross section)
Transparency Options
Cell Transparency (0 - 1.0):
Average Cell

Visual Editor Capabilities

3D Plots of Lattice Geometries

The screenshot displays the MCNP Visual Editor interface for MCNP Version 5. The main window, titled "D:\TEST DIRV3hex", shows a 3D plot of a lattice geometry. The plot is a hexagonal arrangement of yellow spheres, with a central cluster of spheres. The spheres are arranged in a hexagonal pattern, with a central cluster of spheres. The plot is rendered in a 3D perspective view, showing the hexagonal arrangement of spheres. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Partide Display, Tally Plots, Cross section plots, 3D View, Read_again, Backup, View, Help) and a toolbar. The left sidebar contains various controls for updating the plot, zooming, and rotating. The right sidebar contains a "3D Plotting" panel with options for NPS, CTME, Viewpoint, and Radiography Options. The status bar at the bottom indicates "Ready".

MCNP Visual Editor for MCNP Version 5 - D:\TEST DIRV3hex

File Input Update Plots Surface Cell Data Run Partide Display Tally Plots Cross section plots 3D View Read_again Backup View Help

D:\TEST DIRV3hex

Update: XZ 1 0 0 Global -0.59367 0 15.274
Last
Zoom out Zoom in

Zoom
 Origin
0
0
0
Extent
25
25
 Refresh
 Surf 14
 Cell 16
 Color
 Facets
 Wv Mesh
 Rlect
Rotate about
 NONE
 As 15
 Ver 15
 Hor 15
no scale
Res 300

3D Plotting

Close Normal 3D Plot Radiographic 3D

NPS = 998499 CTME (secs) = 156.18
Viewpoint: X Y Z 150

Enter cell numbers or cell ranges separated by spaces or commas. For example, 14 5-6 8
Z 102

3D data used to make the plot

Update Plot Basis Horizontal 1 0 0
Vertical 0 1 0
Origin-Source Vector: 0 0 1

Radiography Options

Darkness indicates rag length
Rag length corresponding to pure black (cm)
 Darkness indicates (rag length) * (cross section)

Color by Cell Draw lines around cells Color cells by material
Use 3D shading Use distance shading Point source
Hide plot plane image Hide cookie cutters Plot to outside world

Resolution: 1000

warning: surface 108 is not used for anything.
lmen is done
plot is done
ract is done
mcrun is done

MCNP Visual Editor Version 5.0

MCNP Visual Editor Version 5.0

Ready

Visual Editor Capabilities

Dynamic 3D Display

comment: 1 surfaces were deleted for being the same as others.
warning: 1 materials had unnormalized fractions. print table 40.
warning: 1 cells appear to consist of more than one piece.
creating file mnpn.sav

MCNP Visual Editor Version 19k - D:\TEST DIR\ipig

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

Update: XZ 1 0 0 Global 0 0 0 Label: CEL n = 1 Level: 10

Update: XZ 1 0 0 Global -30.215327 -38.73112 0 Label: CEL n = 1 Level: 10

Mode: Rotate Zoom Look Move Toward Select Roll Pitch Yaw

Extent: 100 100

Refresh: Surf 18 Cell 18 Color Facets uv Mesh Rect tal mesh Rotate about: Azial 15 Vert 15 Horiz 15 no scale Res: 300 Pscript

3D Dynamic Plotting: Polyhedra 100 Symmetric 100 Asymmetric 100 Display Cells with material Cells to: [Yellow bar]

MCNP Visual Editor Version 5.0

Visual Editor Capabilities

Dynamic 3D Display

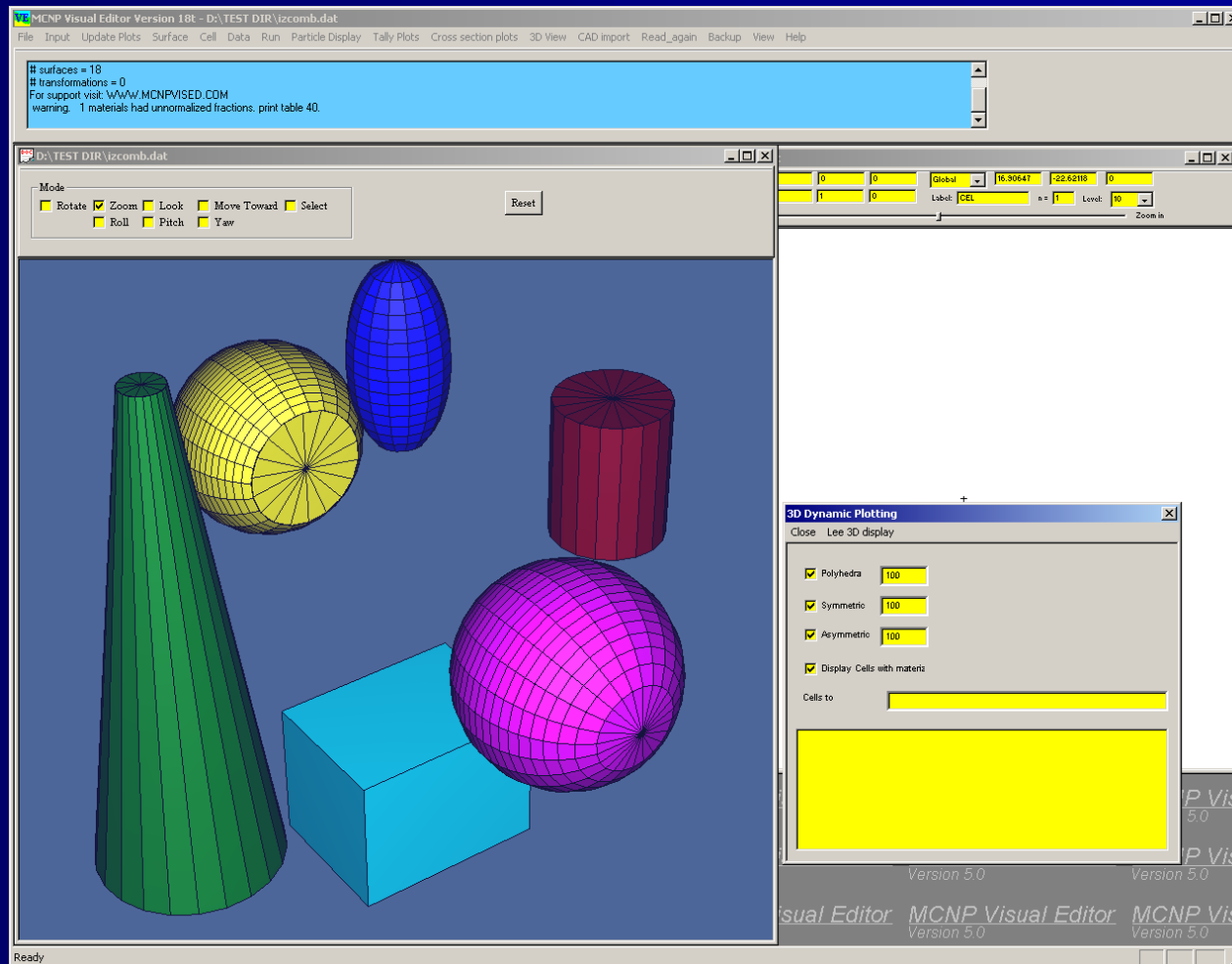
The screenshot displays the MCNP Visual Editor Version 19k interface. The main window shows a 3D wireframe model of a complex cylindrical structure. The interface includes several control panels:

- Update Panel:** Contains fields for 'Update' (set to XZ), 'Global', and 'Label' (set to CEL).
- Zoom Panel:** Includes 'Zoom' and 'Origin' controls.
- Mode Panel:** Features checkboxes for 'Rotate', 'Zoom', 'Look', 'Move Toward', 'Select', 'Roll', 'Pitch', and 'Yaw'.
- Extent Panel:** Includes 'Extent' (set to 100), 'Refresh', 'Surf' (set to 18), 'Cell' (set to 18), 'Color', 'Facets', 'uv Mesh', 'Rect', 'tal mesh', and 'Rotate about' (set to Axial).
- Resolution Panel:** Includes 'Res' (set to 300) and 'Pscript'.
- 3D Dynamic Plotting Panel:** Includes checkboxes for 'Polyhedra' (checked), 'Symmetric' (checked), 'Asymmetric' (checked), and 'Display Cells with material' (checked). It also has a 'Cells to' field.

The status bar at the bottom of the window displays 'Ready' and 'Version 5.0'.

Visual Editor Capabilities

Dynamic 3D Display



Visual Editor Capabilities

Source Point Plots

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D model of a complex geometry with source points (red dots) plotted on its surfaces. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View, CAD import, Read_again, Backup, View, Help), a status bar, and a command window. The command window shows the following text:

```
# cells = 108  
# surfaces = 253  
# transformations = 0  
For support visit: WWW.MCNPVISED.COM
```

The interface is divided into two main panes, each showing a different view of the geometry and source points. The left pane shows a top-down view, and the right pane shows a side view. Both panes have their own control panels for updating, zooming, and displaying the source points. The right pane's control panel includes a 'Particle Display' section with the following options:

- Update: XY, 1, 0, 0, Global, -62.94964, -54.21903, 0
- Last: 0, 1, 0, Label: CEL, n = 1, Level: 10
- Zoom out: Zoom in
- Zoom: 0
- Origin: Origin
- Extent: 0, 100, 100
- Refresh: Refresh
- Surf: 18
- Cell: 18
- Color: Color
- Facets: Facets
- Mesh: Mesh
- Plect: Plect
- Rotate about: Rotate about
- Asial: 15
- Vert: 15
- Horiz: 15
- no scale: no scale
- Res: 300
- Pscript: Pscript

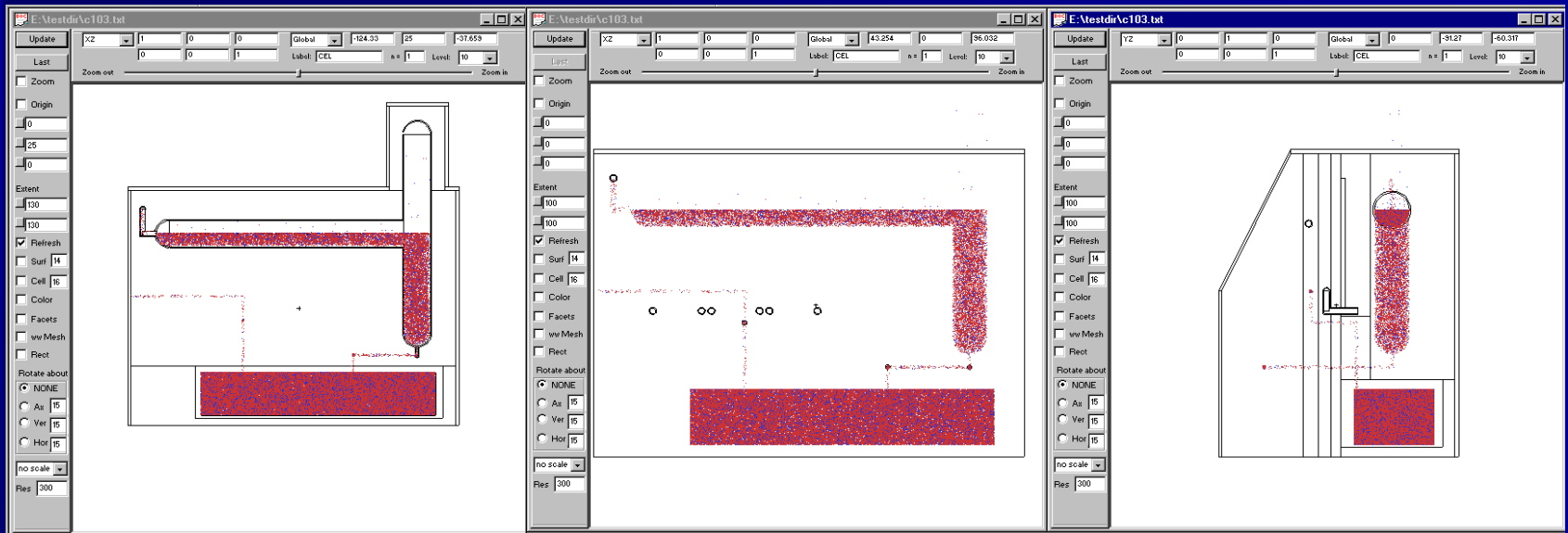
The 'Particle Display' section includes the following options:

- Close Plot
- STOP
- NPS:
- PARTICLES: 99999
- Number of Particles: 100000
- Distance from the Plot Plane (cm): 100
- File:
- SDEF
- KCODE OPTIONS: KCODE Cycles delimit with space or comma, CUMULATIVE, ANIMATE, PLOT, RUN
- PARTICLETRACK OPTION: TRACKS Collision, Tally Contributions Only, Tally Number: , Segment Number:
- TRACK and SDEF color options: Color By: Energy, min , max , Point Size: Pixel, Border

The bottom of the interface features a repeating pattern of the text 'MCNP Visual Editor Version 5.0' and a 'Ready' status bar.

Visual Editor Capabilities

Source Point Plots



Visual Editor Capabilities

Collision Plots (color by weight)

MCNP Visual Editor Version 10f - D:\TEST DIR\c103.txt

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

cells = 108
surfaces = 253
transformations = 0
For support visit: WWW.MCNPVISED.COM

D:\TEST DIR\c103.txt

Update: YZ 0 1 0 Global 3.244731 15.74651 -17.85292
Last: 0 0 1 Label: CEL n= 1 Level: 10
Zoom out Zoom in

Zoom
 Origin
3.244731
14.10274
2.338096
Extent:
78.43279
78.43279
 Refresh
 Surf 18
 Cell 18
 Color
 Facets
 New Mesh
 Rect
Rotate about
Asial 15
Vert 15
Horiz 15
no scale
Res 300
 Pscript

Particle Display
Close Plot
STOP NPS: 10000 PARTICLES: 72960
Number of Particles: 10000 Distance from the Plot Plane (cm): 100 File:
 SDEF
KCODE OPTIONS
 KCODE Cycles: delimit with space or comma define range with a dash (-) CUMULATIVE PLOT
 ANIMATE RUN
PARTICLE TRACK OPTION
 TRACKS Collision
 Tally Contributions Only Tally Number: Segment Number:
TRACK and SDEF color options
Color By: Weight min max Point Size: Pixel Border
mcnup is done
72960 points plotted
minimum weight used = 0.2310E+11 maximum weight used = 0.3690E+12
minimum weight found > 1.e-9 = 0.2310E+11 maximum weight found = 0.3690E+12
minimum blue maximum red

Version 5.0 Version 5.0 Version 5.0 Version 5.0

Ready

Visual Editor Capabilities

KCODE Source Generation Points

The screenshot displays the MCNP Visual Editor Version 10T interface. The main window shows a circular hexagonal lattice structure with purple particles. The interface includes several panels and controls:

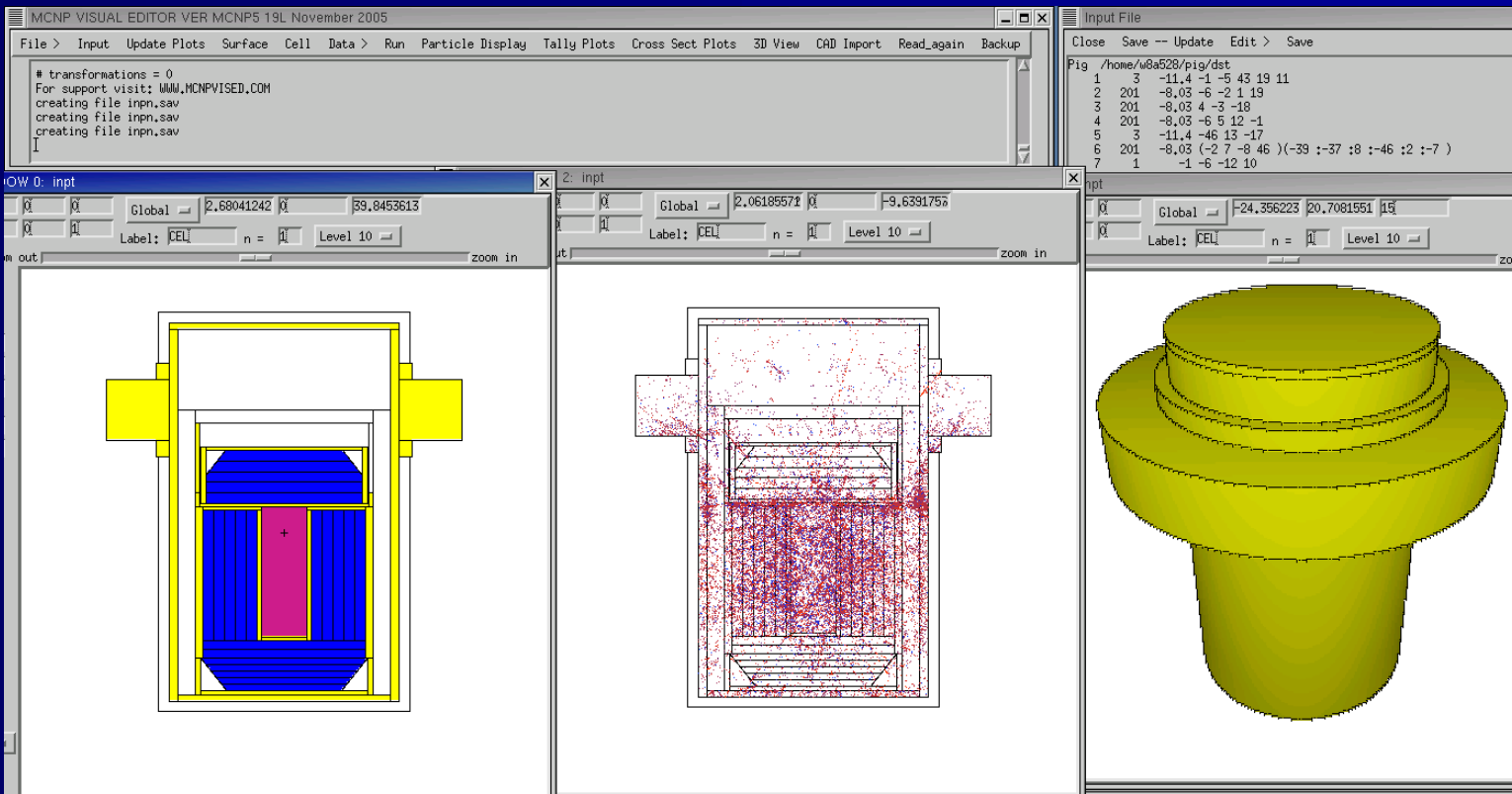
- Update Panel:** Contains fields for 'Update' (XY, 1, 0, 0), 'Global' (20.5006, 97.307, 0), 'Last' (0, 1, 0), 'Label' (CEL), 'n' (1), and 'Level' (1). It also has 'Zoom out' and 'Zoom in' buttons.
- Particle Display Panel:** Includes a 'Close Plot' button, 'STOP', 'NPS' (empty), and 'PARTICLES' (4894). It has fields for 'Number of Particles' (1000) and 'Distance from the Plot Plane (cm)' (100). There are checkboxes for 'SDEF' and 'File'. Below this are 'KCODE OPTIONS' (Cycles: 1-13, CUMULATIVE, PLOT, ANIMATE, RUN) and 'PARTICLE TRACK OPTION' (TRACKS: Collision, Tally Contributions Only, Tally Number, Segment Number).
- TRACK and SDEF color options:** Includes 'Color By' (Energy), 'min' and 'max' fields, 'Point Size' (Pixel), and a 'Border' checkbox.
- Plot Data:** A list of plotted points: 4843, 5100, 5182, 5029, 4925, 4963, 4971, and 4894.
- Left Panel:** Contains 'Extent' (100), 'Refresh', 'Surf' (18), 'Cell' (18), 'Color', 'Facets', 'View Mesh', 'Plect', and 'Rotate about' (Asial: 15, Vert: 15, Horiz: 15). It also has 'no scale' and 'Res' (300) options.
- Bottom Panel:** Includes 'Input File' and 'Pscript' checkboxes.

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Visual Editor Version 5.0 MCNP Vis Version 5.0

New Feature Linux Version



New Feature Open (Do Not Modify)

The screenshot displays the MCNP Visual Editor interface. The 'Open (do not modify input)' menu option is highlighted. A dialog box titled 'Open Input in Separate Editor to Modify' is open, providing instructions on how to use this feature. The background shows a 3D model of a reactor core and a window displaying the input file content.

Menu:

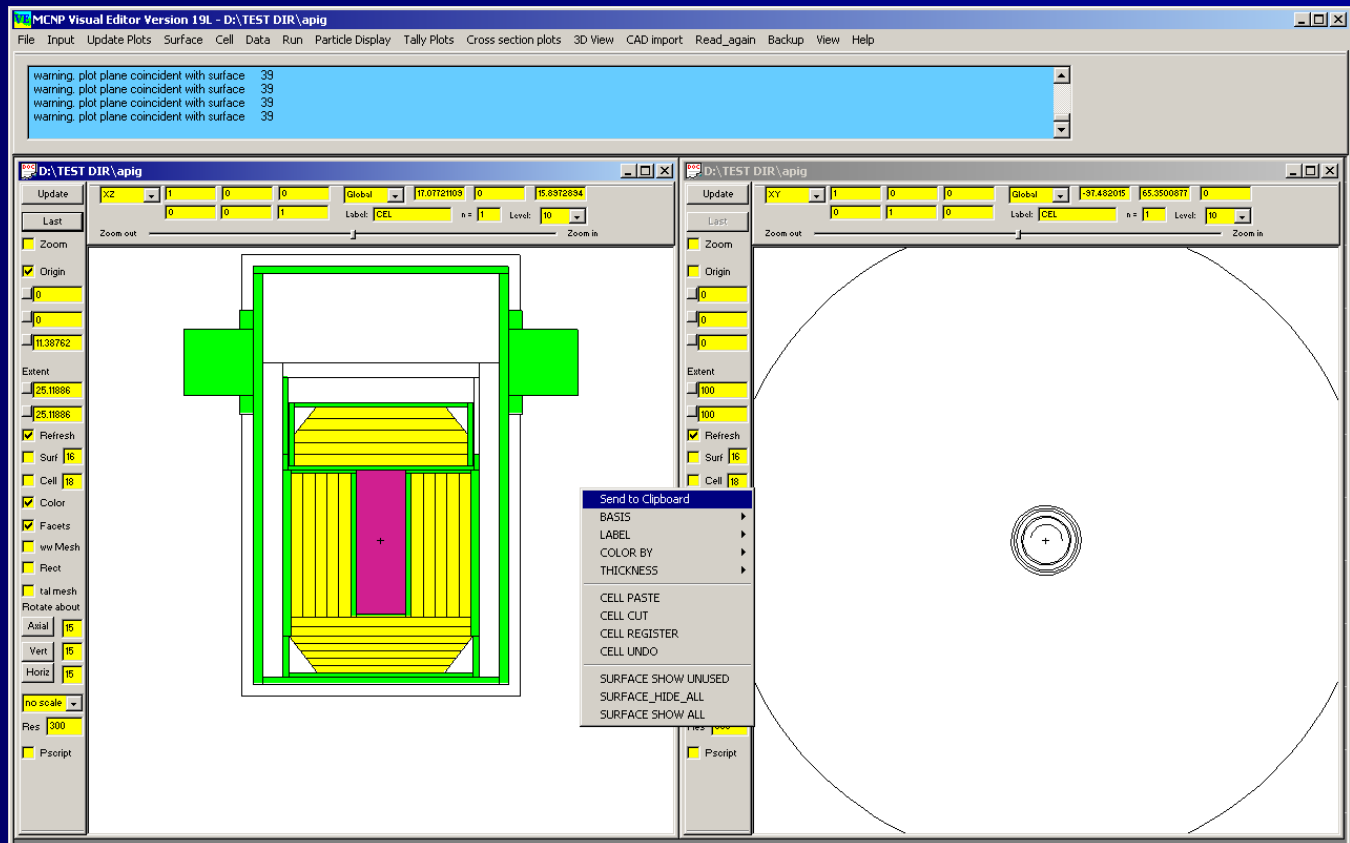
- New View (Ctrl+N)
- Open (Ctrl+O)
- Open (do not modify input)**
- Clear Input
- Save (Ctrl+S)
- Save As
- Print... (Ctrl+P)
- Print Preview
- Print Setup...
- Exit

Input File Content:

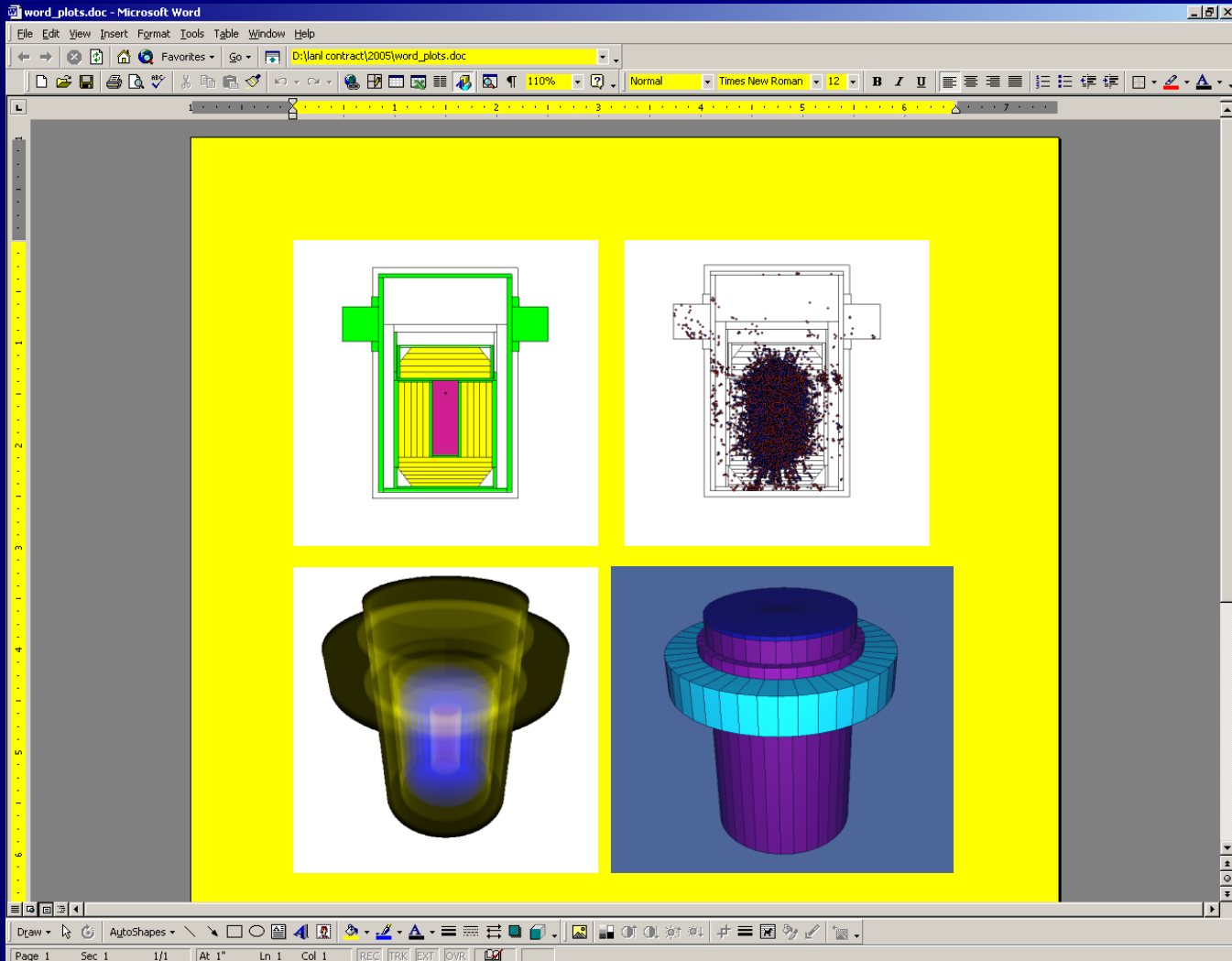
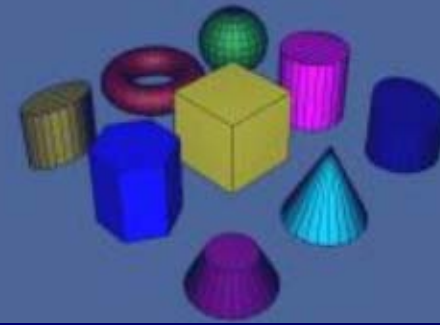
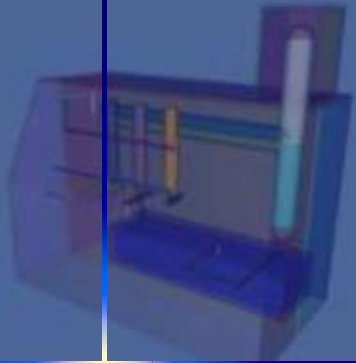
```
Pig /home/w8a528/pig/dst
1 3 -11.4 -1 -5 43 19 11
2 201 -8.03 -6 -2 1 19
3 201 -8.03 4 -3 -18
4 201 -8.03 -6 5 12 -1
5 3 -11.4 -46 13 -17
6 201 -8.03 (-2 7 -8 46 )(-39 :-37 :8 :-46 :2 :-7 )
7 1 -1 -6 -12 10
8 201 -8.03 -9 -5 11 12
9 201 -8.03 -10 -12 11
10 201 -8.03 17 -14 -16 13
11 201 -8.03 -13 6 -7
12 0 -14 13 16 -7
13 201 -8.03 -14 15 -17
14 201 -8.03 -2 -19 18 4
15 3 -11.4 -19 53 -32
16 0 (-23 2 -20 4 )(37 :39 :-38 :-36 :-35 :8 )
17 201 -8.03 -24 -21 22 20
18 201 -8.03 -4 -20 22
19 0 -7 14 -8
20 0 -23 -2 8
21 201 -8.03 -25 -21 24
22 0 -24 -20 23
23 201 -8.03 -26 29 21 -28
24 201 -8.03 -27 -30 28 21
25 201 -8.03 -31 30 21 -26
26 0 32 -18 3
27 0 33 -17 -15
28 0 34
29 0 (-34 )(61 :67 :-64 )
31 3 -11.4 -5 -43 42 11
32 3 -11.4 41 -42 -5 11
33 3 -11.4 -41 40 -5 19 11
34 3 -11.4 9 -5 -40 11
38 3 -11.4 46 -47 -17
39 3 -11.4 (47 -48 -17 )(-33 :15 :17 )
40 3 -11.4 -49 48 -33
41 3 -11.4 49 -15 -33
42 3 -11.4 -53 52 -32
43 3 -11.4 -52 51 -32
44 3 -11.4 -51 50 -32
45 3 -11.4 -50 3 -32
46 201 -8.03 -46 6 -2 7
47 0 7 -2 -8 46 37 39
48 3 -11.4 44 -1 -11
49 3 -11.4 -1 -44 19
50 0 (((-65 -59 62 )(25 :-22 :21 ))(30 :27 :-28 :-21 ))
(-21 :31 :26 :-30 11(28 :-21 :-29 :26 ))
```

MCNP Visual Editor Version 5.0

New Feature Send to Clipboard



New Feature Send to Clipboard



New Feature Cell Wizard

MCNP Visual Editor Version 19k - Vised21

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

```
# cells = 0
# surfaces = 9
# transformations = 0
For support visit WWW.MCNPVISED.COM
```

Vised21

Update: XZ 1 0 0 Global: -19.054748 0 -915619361

Last: 0 0 1 Label: CEL n = 1 Level: 10

Zoom out Zoom in

Vised22

Update: XY 1 0 0 Global: 1151073148 90.484736 0

Last: 0 1 0 Label: CEL n = 1 Level: 10

Zoom out Zoom in

Cell Wizard - Create New

Drag across all surfaces necessary to bound the region. Show All Surfaces Show Unused Surfaces Undo Drag

Cell Number: 1 Existing Cell Description: [-6 -2 1 5] [9 -6 2 -3]

Region defined by the current surfaces dragged: 3 4 6 5

ERROR: DRAG FAILED -- Try Again

< Back Next > Cancel Help

Cell

Close Cancel Delete Clear Hide Show | Cut Paste Undo Register | Wizard Help Cell_Splitting

Cell Mode

Activate Create New Scan Edit Create Like Undo Drag Enable Highlights Select Facet Only (Macrobodies) Not: []

Cell Description: [-6 -2 1 5] [9 -6 2 -3]

Cell Number: 1 Material: 0 Density: 0 Transformation: 0 Universe: 0 Fill: 0 No Lattice: 0

Dollar Comment: []

Comment Card: []

ERROR: DRAG FAILED -- Try Again

3 4
3 4 6
3 4 6 5

MCNP Visual Editor Version 5.0 MCNP Version

MCNP Visual Editor Version 5.0 MCNP Version

MCNP Visual Editor Version 5.0 MCNP Version

Ready

New Feature Cell Wizard

MCNP Visual Editor Version 19k - Vised21

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

```
# surfaces = 9
# transformations = 0
For support visit: WWW.MCNPVISED.COM
creating file inpn.sav
```

Vised21

Update: XZ 1 0 0 Global: -53.551122 0 -83.662474

Last: 0 0 1 Label: CEL n = 1 Level: 10

Zoom out Zoom in

Zoom

Origin

Extent

Refresh

Surf 18

Cell 18

Color

Facets

uv Mesh

Rect

tal mesh

Rotate about

Asial 15

Vert 15

Horiz 15

no scale

Res 300

Pscript

Vised22

Update: XZ 1 0 0 Global: 1151073148 90.484736 0

Last: 0 0 1 Label: CEL n = 1 Level: 10

Zoom out Zoom in

Zoom

Origin

Extent

Refresh

Surf 18

Cell 18

Color

Facets

uv Mesh

Rect

tal mesh

Rotate about

Asial 15

Vert 15

Horiz 15

no scale

Res 300

Pscript

Cell

Close Cancel Delete Clear Hide Show | Cut Paste Undo Register | Wizard Help Cell_Splitting

Cell Mode

Activate Create New Scan Edit Create Like Undo Paste Enable Highlights Select Facet Only (Macrobodyes) Not:

Cell Description: [-6-215];[9-62-3];[3-4-65]

Cell Number: 1 Material: 0 Density: 0 Transformations: 0 Universe: 0 Fill: 0 No Lattice: 0

Dollar Comment

Comment Card

POINT ACCEPTED -- Select Paste or Cut

POINT ACCEPTED -- Select Paste or Cut

CELL PASTED -- Select Register or drag across more surfaces for another cut or paste

er 03, 2005 at 06:20

New Feature Online Help

MCNP Visual Editor Version 19L - Vised22

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

```
# cells = 0
# surfaces = 0
# transformations = 0
For support visit WWW.MCNPVISED.COM
```

Vised21

Update: XZ 1 0 0 Glob

Last: 0 0 1 Label:

Zoom out

Origin

0

0

0

Extent

100

100

Refresh

Surf R8

Cell R8

Color

Facets

WV Mesh

Rect

tal mesh

Rotate about

Asial R5

Vert R5

Horiz R5

no scale

Res 300

Psript

MCNP Visual Editor Version 5.0

MCNP Visual Editor Version 5.0

MCNP Visual Editor Version 5.0

MCNP Visual Editor Version 5.0

Ready

Visual Editor Help

Hide Back Forward Print Options

Contents Index Search

Type in the keyword to find:

lattice

List Topics

Select topic to display:

- Creating a Hexagonal Lattice
- Creating a Square Lattice
- MCNP Visual Editor
- Plotting and Changing Plot Parameters
- Special Hex Lattice Display Options
- The Cell Panel

Display

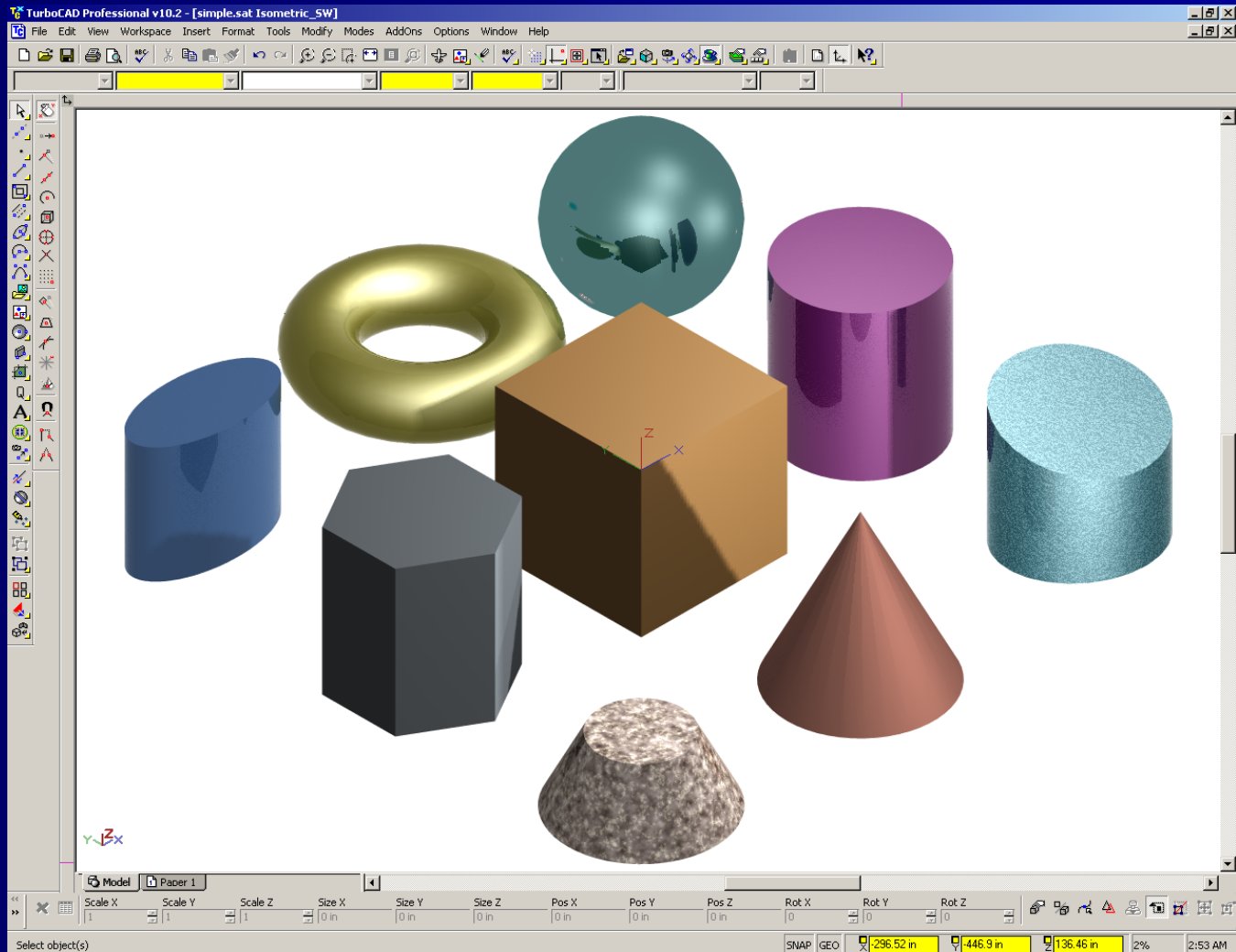
MCNP Visual Editor Help

Web Site: www.mcnpvised.com Contact: RandySchwarz@mcnpvised.com

| | | |
|--|--|---|
| <p>Introduction</p> <ul style="list-style-type: none"> Installation Notes Program Background Beginning An Interactive Editing Session Important Files In The Visual Editor The Main Menu Functions Reading and Writing the Input File File Options The Input Window Plotting and Changing Plot Parameters Update Last Button Zoom Check Box Origin Check Box Changing the Extents Refresh Check Box The Surface and Cell Check Box Color Check Box Facets Check Box WV Mesh Check Box Rect Check Box Plot Rotation Options Scales Check Box Res Text Box Psript Check Box Changing the Basis Viewing Global/Local Coordinates Setting Cell Labels Level Pull-down Menu The Surface Window Creating A Surface Scanning A Surface Deleting A Surface | <p>The Cell Window</p> <ul style="list-style-type: none"> Creating A Cell Discussion of Cell Paste and Cut Operations Special Sans Considerations Creating a Cell with Universes Using Undo Register Scanning a Cell Deleting a Cell Editing a Cell Create Like Hiding and Showing Cells Cell Comments Splitting a Cell Creating a Square Lattice Creating a Hexagonal Lattice Special Hex Lattice Display Options The Cell Wizard Materials Creating a Material Scanning a Material Delete A Material Edit A Material The Vised.Defaults File Material Library Material Options Importances Setting Cell Importances Using a Scale Factor Using a Geometric Factor The Importance Display Truncating Importances Transformations Renumber Cells/Surfaces Run | <p>Particle Display</p> <ul style="list-style-type: none"> SDEF Source Plotting KCODE Source Plotting Particle Track Plotting Setting Point Color and Size Setting Energy or Weight Ranges Problems Generating Particle Tracks Tally Plots Cross Section Plots 3D Ray Traced Image 3D Color Plots 3D Update The Plot Basis Color By Cell/Surface Draw Lines Around Cells Color Cells by Material 3D Shading Distance Shading Point/Plane Source Type Show the Plot Plans Hide/Show Cookie Cutters Plot to the Outside World/Plot Plane Plot Resolution 3D Radiographic Plots 3D Transparent Plots CAD Import 2D CAD Import 3D CAD Import Read Again Backup INP Problem Report |
|--|--|---|

3D CAD conversion

Sample Geometries in CAD



3D CAD conversion

Sample Geometries in MCNP

MCNP Visual Editor Version 10t - G:\CAD\sbir\phase 2\final_docs\final_report_geoms\simple.sat

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

cells = 10
surfaces = 30
transformations = 0
For support visit: WWW.MCNPVISED.COM

G:\CAD\sbir\phase 2\final_docs\final_report_geoms\simple.sat

Update: XY 1 0 0 Global: -291.3668 -430.1257 -20
Last: 0 1 0 Label: CEL n=1 Level: 10
Zoom out Zoom in

Mode: Rotate Zoom Look Move Toward Select
 Roll Pitch Yaw

Origin: 0 0 -20
Extent: 750 750
 Refresh Surf 18 Cell 18
 Color Facets View Mesh Fieet
Rotate about: Asial 15 Vert 15 Horiz 15
Res: no scale 300
 Pscript

Input File

Created on: Saturday, August 20, 2005 at 15:14

```

1 0 (-1 -2 -3 -4 -5 -6 -7 -8 )
2 0 (-8 -7 -11 -12 -13 -14 )
3 0 (-15 -7 -8 )
4 0 (-7 -19 )
5 0 (-20 )
6 0 (-21 )
7 0 (-22 -23 -24 )
8 0 (-25 -26 -27 )
9 0 (-28 -29 - )
10 0 (1 :2 :3 :4 :5 :6 :7 :8 )(8 :7 :11 :12 :13 :14 )(15 :7 :8 )
(7 :19 )(20 )(21 )(22 :23 :24 )(25 :26 :27 )(28 :29 :7 )

```

1 p 0.5 0.8660254 0 -80.51477
2 p 1 -7.105427e-016 0 -271.0148

CAD 3D import

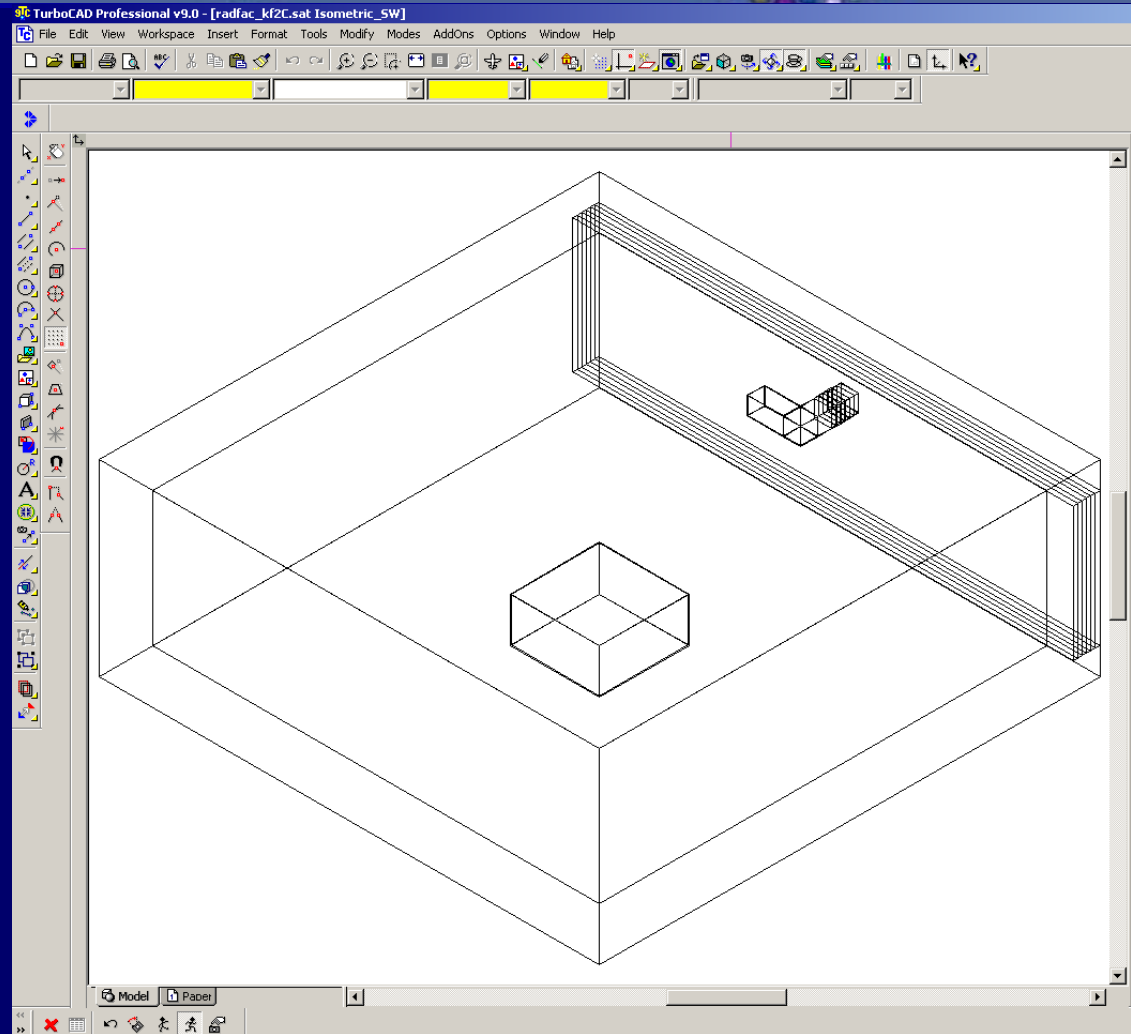
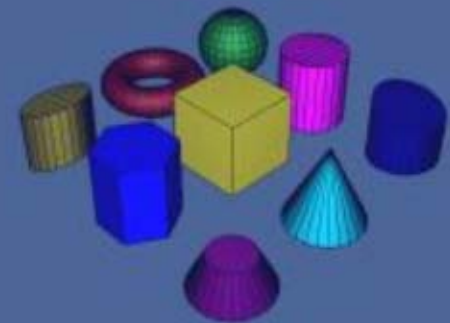
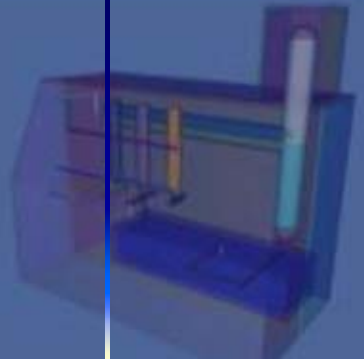
3D CAD options:
 Do not Display the 3D geometry resolution (slices in 360 degrees - must be at least 4): 24
 Create Surfaces Only
 Parse body number Perimeter Modeling No Debug

Body 1, SAT index 0, center: x=-381.000000, y=0.000000, z=0.000000
Body 2, SAT index 1, center: x=0.000000, y=0.000000, z=0.000000
Body 3, SAT index 2, center: x=381.000000, y=0.000000, z=0.000000
Body 4, SAT index 3, center: x=0.000000, y=-381.000000, z=0.000000
Body 5, SAT index 4, center: x=0.000000, y=381.000000, z=0.000000
Body 6, SAT index 5, center: x=381.000000, y=381.000000, z=0.000000
Body 7, SAT index 6, center: x=381.000000, y=381.000000, z=-5.000736
Body 8, SAT index 7, center: x=-381.000000, y=381.000000, z=0.000000
Body 9, SAT index 8, center: x=-381.000000, y=-381.000000, z=71.120000

3D CAD conversion

Generate in CAD

Export as a SAT file



3D CAD conversion

Read SAT File into Visual Editor

3D View of CAD Geometry Displayed

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D view of a hexagonal structure with a central cube. The interface includes a menu bar (File, Input, Update Plots, Surface, Cell, Data, Run, Particle Display, Tally Plots, Cross section plots, 3D View, CAD import, Read_again, Backup, View, Help) and a toolbar. The CAD 3D import dialog box is open, showing the following options:

- Do not Display the 3D geom
- Create Surfaces Onl
- Parse
- Split
- KF: 2

The dialog box also displays a list of bodies and edges:

```
Body 1, SAT index 0, center: x=0.000000, y=0.000000, z=0.000000
Body 2, SAT index 1, center: x=0.000000, y=0.000000, z=0.000000
Body 3, SAT index 2, center: x=0.000000, y=0.000000, z=0.000000
Body 4, SAT index 3, center: x=0.000000, y=0.000000, z=0.000000
Body 5, SAT index 4, center: x=0.000000, y=0.000000, z=0.000000
Body 6, SAT index 5, center: x=0.000000, y=0.000000, z=0.000000
Body 7, SAT index 6, center: x=0.000000, y=0.000000, z=0.000000
Body 8, SAT index 7, center: x=0.000000, y=0.000000, z=0.000000
Body 9, SAT index 8, center: x=0.000000, y=0.000000, z=0.000000
Body 10, SAT index 9, center: x=0.000000, y=0.000000, z=0.000000
Body 11, SAT index 10, center: x=0.000000, y=0.000000, z=0.000000
Body 12, SAT index 11, center: x=0.000000, y=0.000000, z=0.000000
Body 13, SAT index 12, center: x=0.000000, y=0.000000, z=0.000000
Body 14, SAT index 13, center: x=0.000000, y=0.000000, z=0.000000
Body 15, SAT index 14, center: x=0.000000, y=0.000000, z=0.000000
Body 16, SAT index 15, center: x=0.000000, y=0.000000, z=0.000000
Body 17, SAT index 16, center: x=0.000000, y=0.000000, z=0.000000

db: Edge=2140, body=28, lump=110, shell=139, face=2122, facenum = 6, coedge=1263
db: Edge=2840, body=28, lump=110, shell=139, face=664, facenum = 4, coedge=2126
db: Edge=2840, body=28, lump=110, shell=139, face=1240, facenum = 5, coedge=2140
db: Edge=2140, body=28, lump=110, shell=139, face=1240, facenum = 5, coedge=2130
db: Edge=2140, body=28, lump=110, shell=139, face=2122, facenum = 6, coedge=1264
CAD input complete
Select "Convert" to create the MCNP input file
```

3D CAD conversion Convert to MCNP

The screenshot displays the MCNP Visual Editor interface. The main window shows a 2D cross-section of a rectangular structure with several numbered regions (1, 2, 7, 8, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29). The input file on the right contains the following text:

```
REPORT ANY PROBLEMS WITH THE VISUAL EDITOR TO RANDY SCHWARZ email: randyschwarz@mcnpvised.c
Ready
warning: plot plane coincident with surface 8

Created on: Friday, March 25, 2005 at 14:35
1 0 (-1 -2 -3 -4 -5 -6 ) (7 :8 :3 :-12 :5 :18 )
(7 :8 :3 :-18 :5 :24 ) (7 :8 :3 :-24 :5 :30 ) (7 :8 :3 :-30 :5 :36 )
(7 :8 :3 :-36 :5 :42 ) (7 :8 :3 :-42 :5 :48 ) (7 :8 :9 :10 :11 :12 )
2 0 (-7 -8 -9 -10 -11 -12 ) (49 :50 :51 :124 :53 :112 )
(49 :50 :51 :136 :137 :138 ) (49 :50 :51 :136 :53 :-124 )
(157 :8 :159 :160 :137 :162 )
3 0 (-7 -8 -3 12 -5 -18 ) (49 :50 :51 :-12 :53 :18 )
4 0 (-7 -8 -3 18 -5 -24 ) (49 :50 :51 :-18 :53 :24 )
5 0 (-7 -8 -3 24 -5 -30 ) (49 :50 :51 :-24 :53 :30 )
6 0 (-7 -8 -3 30 -5 -36 ) (49 :50 :51 :-30 :53 :36 )
7 0 (-7 -8 -3 36 -5 -42 ) (49 :50 :51 :-36 :53 :42 )
8 0 (-7 -8 -3 42 -5 -6 ) (49 :50 :51 :-42 :53 :6 )
9 0 (-49 -50 -51 12 -53 -18 ) (85 :86 :87 :-12 :89 :18 )
10 0 (-49 -50 -51 18 -53 -24 ) (85 :86 :87 :-18 :89 :24 )
11 0 (-49 -50 -51 24 -53 -30 ) (85 :86 :87 :-24 :89 :30 )
12 0 (-49 -50 -51 30 -53 -36 ) (85 :86 :87 :-30 :89 :36 )
13 0 (-49 -50 -51 36 -53 -42 ) (85 :86 :87 :-36 :89 :42 )
14 0 (-49 -50 -51 42 -53 -6 ) (85 :86 :87 :-42 :89 :6 )
15 0 (-85 -86 -87 12 -89 -18 )
16 0 (-85 -86 -87 18 -89 -24 )
17 0 (-85 -86 -87 24 -89 -30 )
18 0 (-85 -86 -87 30 -89 -36 )
19 0 (-85 -86 -87 36 -89 -42 )
20 0 (-85 -86 -87 42 -89 -6 )
21 0 (-49 -50 -51 -124 -53 -12 ) (85 :86 :87 :124 :89 :12 )
22 0 (-85 -86 -87 -124 -89 -12 )
23 0 (-49 -50 53 -136 -137 -138 ) (85 :86 :53 :142 :137 :-124 )
24 0 (-85 -86 53 -142 -137 124 )
25 0 (-49 -50 -51 -136 -53 124 ) (85 :86 :87 :142 :53 :-124 )
26 0 (-85 -86 -87 -142 -53 124 )
27 0 (-157 -8 -159 -160 -137 -162 ) (163 :164 :165 :166 :167 :168 )
28 0 ) (-163 -164 -165 -166 -167 -168 )
29 0 (1 :2 :3 :4 :5 :6 )

1 p 0 0 1 360
2 p 0 0 -1 60
3 p 0 -1 0 560
4 p -1 0 0 560
5 p 0 1 0 560
6 p 1 0 0 560
7 p 0 0 1 360
```

3D CAD conversion

View MCNP Geometry in 3D

The screenshot shows the MCNP Visual Editor interface. The main window displays a 3D model of a rectangular slab with a small block on top. The console window on the right shows the following text:

```
Warning: this surface has been replaced by a surface of type pz
Warning: this surface has been replaced by a surface of type py
Warning: this surface has been replaced by a surface of type px
Warning: this surface has been replaced by a surface of type pz
Warning: this surface has been replaced by a surface of type py
Warning: this surface has been replaced by a surface of type px
Comment: 128 surfaces were deleted for being the same as others.

Created on: Friday, March 25, 2005 at 14:35
c
1 0 (-1 -2 -3 -4 -5 -6 ) (7 : 8 : 3 :-12 : 5 : 18 )
( 7 : 8 : 3 :-18 : 5 : 24 ) ( 7 : 8 : 3 :-24 : 5 : 30 ) ( 7 : 8 : 3 :-30 : 5 : 36 )
( 7 : 8 : 3 :-36 : 5 : 42 ) ( 7 : 8 : 3 :-42 : 5 : 6 ) ( 7 : 8 : 9 : 10 : 11 : 12 )
2 0 (-7 -8 -9 -10 -11 -12 ) ( 49 : 50 : 51 : 124 : 53 : 12 )
( 49 : 50 :-53 : 136 : 137 : 138 ) ( 49 : 50 : 51 : 136 : 53 :-124 )
( 157 : 8 : 159 : 160 : 137 : 162 )
3 0 (-7 -8 -3 12 -5 -18 ) ( 49 : 50 : 51 :-12 : 53 : 18 )
4 0 (-7 -8 -3 18 -5 -24 ) ( 49 : 50 : 51 :-18 : 53 : 24 )
5 0 (-7 -8 -3 24 -5 -30 ) ( 49 : 50 : 51 :-24 : 53 : 30 )
6 0 (-7 -8 -3 30 -5 -36 ) ( 49 : 50 : 51 :-30 : 53 : 36 )
7 0 (-7 -8 -3 36 -5 -42 ) ( 49 : 50 : 51 :-36 : 53 : 42 )
8 0 (-7 -8 -3 42 -5 -6 ) ( 49 : 50 : 51 :-42 : 53 : 6 )
9 0 (-49 -50 -51 12 -53 -18 ) ( 85 : 86 : 87 :-12 : 89 : 18 )
10 0 (-49 -50 -51 18 -53 -24 ) ( 85 : 86 : 87 :-18 : 89 : 24 )
11 0 (-49 -50 -51 24 -53 -30 ) ( 85 : 86 : 87 :-24 : 89 : 30 )
12 0 (-49 -50 -51 30 -53 -36 ) ( 85 : 86 : 87 :-30 : 89 : 36 )
13 0 (-49 -50 -51 36 -53 -42 ) ( 85 : 86 : 87 :-36 : 89 : 42 )
14 0 (-49 -50 -51 42 -53 -6 ) ( 85 : 86 : 87 :-42 : 89 : 6 )
15 0 (-85 -86 -87 12 -89 -18 )
16 0 (-85 -86 -87 18 -89 -24 )
17 0 (-85 -86 -87 24 -89 -30 )
18 0 (-85 -86 -87 30 -89 -36 )
19 0 (-85 -86 -87 36 -89 -42 )
20 0 (-85 -86 -87 42 -89 -6 )
21 0 (-49 -50 -51 -124 -53 -12 ) ( 85 : 86 : 87 : 124 : 89 : 12 )
22 0 (-85 -86 -87 -124 -89 -12 )
23 0 (-49 -50 53 -136 -137 -138 ) ( 85 : 86 : -53 : 142 : 137 :-124 )
24 0 (-85 -86 53 -142 -137 124 )
25 0 (-49 -50 -51 -136 -53 124 ) ( 85 : 86 : 87 : 142 : 53 :-124 )
26 0 (-85 -86 -87 -142 -53 124 )
27 0 (-157 -8 -159 -160 -137 -162 ) ( 163 : 164 : 165 : 166 : 167 : 168 )
)
28 0 (-163 -164 -165 -166 -167 -168 )
29 0 ( 1 : 2 : 3 : 4 : 5 : 6 )

1 p 0 0 1 360
2 p 0 0 -1 60
```

Cell Found = 27



3D CAD conversion

Two Different Modes

- Use CAD to Create the MCNP geometry.
 - Define the geometry without using subtractions or unions
 - Conversion program will determine the subtractions and unions.
- Read an already existing fully defined geometry
 - All space must be defined
 - May need to simplify overly complex cells

Example 3D CAD conversion Building

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D perspective view of a building model. The right-hand side features a 2D plot window showing a wireframe representation of the building's structure. The interface includes a menu bar, a toolbar, and several control panels.

MCNP Visual Editor Version 17 - G:\CAD\SAT_files\test examples\6_31-EXAMPLE5-BUILDING3.sat

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD Import Read_again Backup View Help

Mode: Rotate Zoom Look Move Toward Select
 Roll Pitch Yaw

Update: XY 1 0 0 Global 2397.132 261.343 98.5904
Last: 0 1 0 Label: CEL n 1 Level: 10

Zoom out: Zoom in

Origin: 1312.273 491.1899 98.5904

Extent: 1778.279 1778.279

Refresh Surf 18 Cell 18 Color Facets View Mesh Rect

Rotate about: Axial 18

Input File: Close Save Update Edit

warning plot plane coincident with surface 44
warning plot plane coincident with surface 21
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 44
warning plot plane coincident with surface 21

Created on: Friday, March 25, 2005 at 14:49

```
1 0 (-1 -2 -3 -4 -5 -6 )
2 0 (-1 -2 5 -4 -11 -6 )
3 0 (-13 -14 -15 -16 -17 -6 )
4 0 (-13 -14 -21 -16 15 -6 )
5 0 (-25 -2 -3 -28 -11 -30 ) (1 : 2 : 3 : 4 : 5 : 6 )
(1 : 2 : -5 : 4 : 11 : 6 )
6 0 (-25 -2 11 -34 -35 -30 )
7 0 (-25 -2 17 -28 3 -30 )
8 0 (-43 -44 -21 -46 -47 -48 ) (25 : 2 : 3 : 28 : 11 : 30 )
(13 : 14 : 15 : 16 : 17 : 6 ) (13 : 14 : 21 : 16 : -15 : 6 )
(25 : 2 : -11 : 34 : 35 : 30 ) (25 : 2 : -17 : 28 : -3 : 30 )
```

CAD 3D import: Close Import Convert

3D CAD options: Do not Display the 3D geometry Create Surfaces Only Parse Split KF 2

Body 1, SAT index 0, center: x=2050.000000, y=965.000000, z=130.000000
Body 2, SAT index 1, center: x=2050.000000, y=975.000000, z=130.000000
Body 3, SAT index 2, center: x=2000.000000, y=15.000000, z=140.000000
Body 4, SAT index 3, center: x=2000.000000, y=5.000000, z=140.000000
Body 5, SAT index 4, center: x=2010.000000, y=970.000000, z=160.000000
Body 6, SAT index 5, center: x=2000.000000, y=1120.000000, z=160.000000
Body 7, SAT index 6, center: x=2010.000000, y=490.000000, z=160.000000
Body 8, SAT index 7, center: x=1250.000000, y=650.000000, z=160.000000

Example 3D CAD conversion Building

The screenshot displays the MCNP Visual Editor interface. The main window shows a 3D model of a building with a central tower and a square base. The interface includes a menu bar, a toolbar, and a control panel with options like Rotate, Zoom, and Look. A right-hand panel shows a wireframe diagram of the building's structure with numerical labels for various components. Below the main window, there is an 'Input File' window displaying the converted CAD data, including a list of surfaces and their coordinates. At the bottom, a 'CAD 3D import' dialog box is visible, showing options for displaying the 3D geometry and creating surfaces.

MCNP Visual Editor Version 17 - G:\CAD\SAT_files\test examples\3D_36-TEMPLE1-IN-SPHERE.sat

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD Import Read_again Backup View Help

G:\CAD\SAT_files\test examples\3D_36-TEMPLE1-IN-SPHERE.sat

Mode

Rotate Zoom Look Move Toward Select

Roll Pitch Yaw

Reset

Update

Last

Zoom out Zoom in

Origin

0.1050628

0

-0.1319364

Extent

18.62086

18.62086

Refresh

Surf 18

Cell 18

Color

Facets

View Mesh

Rect

Rotate about

Input File

Close Save -- Update Edit

cells = 0
surfaces = 0
transformations = 0
MCNP loaded.

REPORT ANY PROBLEMS WITH THE VISUAL EDITOR TO RANDY SCHWARZ email: randyschwarz@mcnpvised.com

Ready

143 identical surfaces found. see out file.
warning, flag set for outside cell 1
complete, number cells given to C= 41

Created on: Friday, March 25, 2005 at 14:49

```
c (-1) (2 :3 :4 :5 :6 :7 ) (2 :3 :10 :5 :12 :7 )
1 0 (14 :15 :16 :-6 :-12 ) (-16 :20 :-12 :22 :-6 :24 )
(25 :-2 :-6 :5 :29 :7 ) (31 :-2 :-29 :5 :35 :7 )
(25 :-2 :-12 :5 :41 :7 ) (31 :-2 :-41 :5 :47 :7 ) (49 :50 :-47 :5 :-35 :7 )
(2 :3 :4 :-47 :-22 :-35 :60 ) (61 :62 ) (63 :64 :-62 )
(66 :-49 :-64 ) (-15 :170 :16 :-12 :-6 ) (31 :-2 :76 :-47 :-5 :-35 )
(25 :-2 :22 :-47 :-76 :-35 ) (86 :87 :88 ) (-2 :49 :47 :-5 :-12 :22 )
(2 :3 :10 :-5 :47 :60 ) (101 :-49 :-87 ) (-20 :-88 :106 :107 :108 :109 )
(110 :87 :88 ) (-2 :49 :35 :-5 :-6 :22 ) (2 :3 :4 :-5 :35 :60 )
(125 :-49 :-87 ) (-20 :-88 :130 :107 :132 :109 ) (2 :3 :4 :-47 :-24 :-35 :139 )
(25 :-2 :24 :-47 :144 :-35 ) (31 :-2 :-144 :-47 :-7 :-35 )
(152 :87 :88 ) (2 :3 :10 :-7 :47 :139 ) (-2 :49 :47 :-7 :-12 :24 )
(167 :-49 :-87 ) (-20 :-88 :106 :173 :108 :175 ) (176 :87 :88 )
```

CAD 3D import

Close Import Convert

3D CAD options

Do not Display the 3D geometry Create Surfaces Only Parse Split KF 2

Body 1, SAT index 0, center: x=0.000000, y=0.000000, z=0.000000

Body 2, SAT index 1, center: x=0.000000, y=14.000000, z=2.250000

Body 3, SAT index 2, center: x=0.000000, y=-14.000000, z=2.250000

Body 4, SAT index 3, center: x=4.000000, y=0.000000, z=11.166667

Body 5, SAT index 4, center: x=0.000000, y=0.000000, z=9.250000

Body 6, SAT index 5, center: x=0.000000, y=11.500000, z=-1.666650

Body 7, SAT index 6, center: x=0.000000, y=-11.500000, z=-1.333350

Body 8, SAT index 7, center: x=0.000000, y=-11.500000, z=-1.666650

Example 3D CAD conversion

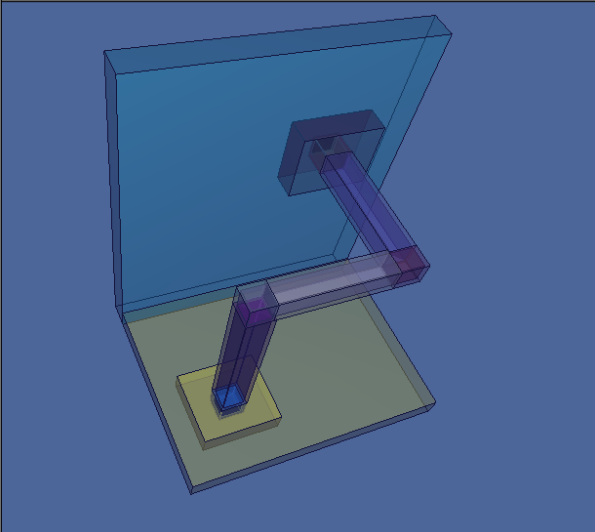
Duct with 3 Bends

MENP Visual Editor Version 17 - G:\CAD\SAT_files\solid_model\3ducts\3ducts_kf4.sat

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

G:\CAD\SAT_files\solid_model\3ducts\3ducts_kf4.sat

Mode
 Rotate Zoom Look Move Toward Select
 Roll Pitch Yaw Reset



Update
 KEY: 1 0 0 Global: 1552834 3413015 0002348
 Last: 0 1 0 Label: CEL Level: 90
 Zoom out Zoom in

Zoom
 Origin
 9172930
 25.22949
 9.002348

Extent
 208.8295
 208.8295

Refresh
 Surf: 16
 Cell: 18
 Color
 Facets
 wv Mesh
 Rect

Input File
 Close Save -- Update Edit

warning: plot plane coincident with surface 17
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42
 warning: plot plane coincident with surface 42

Created on: Friday, March 25, 2005 at 14:49

| | | |
|----|---|--|
| 1 | 0 | (-1 -2 -3 -4)(-5 -6 -7 -8 -9 -10) |
| 2 | 0 | (7 -8 -9 :10)(-5 -6 -17 -18 -19 -20) |
| 3 | 0 | (-1 -2 -3 -4)(-6 -26 -17 -18 -19 -20) |
| 4 | 0 | (-31 -32 -33 -34)(-5 -36 -17 -38 -19 18) |
| 5 | 0 | (-26 -42 -43 -44)(-31 32 33 -38 34 18) |
| 6 | 0 | (-51 -52 -53 -58 -55 18) |
| 7 | 0 | (-51 -52 -53 -18 -55 -62) |
| 8 | 0 | (-51 -52 -53 62 44 -68) |
| 9 | 0 | (26 -52 -71 62 -73 -68) |
| 10 | 0 | (6 -26 -71 62 -73 -68) |
| 11 | 0 | (-5 -6 -71 62 -73 -68) |
| 12 | 0 | (51 :52 :53 :55) (26 42 43 -38 44 18) |
| 13 | 0 | (51 :52 :53 :55) (26 42 43 -18 44 -62) |
| 14 | 0 | (51 :52 :53 :56) (62 26 42 43 44 4) |

CAD 3D import
 Close Import Convert

3D CAD options
 Do not Display the 3D get Create Surfaces Onl Parse Split KF 4

Body 1, SAT index 0, center: x=0.000000, y=0.000000, z=0.000000
 Body 2, SAT index 1, center: x=10.000000, y=25.000000, z=0.000000
 Body 3, SAT index 2, center: x=10.000000, y=25.000000, z=0.000000
 Body 4, SAT index 3, center: x=0.000000, y=25.000000, z=-15.000000
 Body 5, SAT index 4, center: x=0.000000, y=0.000000, z=0.000000
 Body 6, SAT index 5, center: x=0.000000, y=0.000000, z=0.000000
 Body 7, SAT index 6, center: x=0.000000, y=0.000000, z=0.000000
 Body 8, SAT index 7, center: x=0.000000, y=0.000000, z=0.000000

Next CAD to MCNP class

August 7th – 8th

Richland, Washington

The screenshot displays the MCNP Visual Editor Version 18t interface. The main window shows a 2D wireframe model of a complex object, with various surfaces and cells numbered. The 3D view on the right shows a rendered version of the object, composed of various geometric shapes like cylinders, cones, and spheres. The interface includes a menu bar, a toolbar, and several control panels.

MCNP Visual Editor Version 18t - G:\CAD\sbr\phase 2\final_docs\final_report_geoms\simple.sat

File Input Update Plots Surface Cell Data Run Particle Display Tally Plots Cross section plots 3D View CAD import Read_again Backup View Help

cells = 10
surfaces = 30
transformations = 0
For support visit: WWW.MCNPVISED.COM

Update: XY 1 0 0 Global: F2813669 -490.1257 1-20
Last: 0 0 0 Label: CEL n: 1 Level: 10
Zoom out Zoom in

Mode: Rotate Zoom Look Move Toward Select
 Roll Pitch Yaw

Input File

Created on: Saturday, August 20, 2005 at 15:14

```

1 0 (-1 -2 -3 -4 -5 -6 -7 -8 )
2 0 (-8 -7 -11 -12 -13 -14 )
3 0 (-15 -7 -8 )
4 0 (-7 -19 )
5 0 (-20 )
6 0 (-21 )
7 0 (-22 -23 -24 )
8 0 (-25 -26 -27 )
9 0 (-28 -29 -7 )
10 0 (1 :2 :3 :4 :5 :6 :7 :8 )(8 :7 :11 :12 :13 :14 )(15 :7 :8 )
(7 :19 )(20 )(21 )(22 :23 :24 )(25 :26 :27 )(28 :29 :7 )

```

CAD 3D import

Close Import Convert

3D CAD options:
 Do not Display the 3D geometry resolution (slices in 360 degrees - must be at least 4): 24
 Create Surfaces Only
 Parse body number Penmeter Modeling No Debug

Body 1, SAT index 0, center: x=-381.000000, y=0.000000, z=0.000000
Body 2, SAT index 1, center: x=0.000000, y=0.000000, z=0.000000
Body 3, SAT index 2, center: x=381.000000, y=0.000000, z=0.000000
Body 4, SAT index 3, center: x=0.000000, y=-381.000000, z=63.500000
Body 5, SAT index 4, center: x=0.000000, y=381.000000, z=0.000000
Body 6, SAT index 5, center: x=381.000000, y=381.000000, z=0.000000
Body 7, SAT index 6, center: x=381.000000, y=-381.000000, z=-5.00726
Body 8, SAT index 7, center: x=-381.000000, y=381.000000, z=0.000000
Body 9, SAT index 8, center: x=-381.000000, y=-381.000000, z=-71.120000

Next MCNP Visual Editor Class

September 11th – 15th
Richland, Washington

