NAME

genshell - generate a RADIANCE description of a membrane

SYNOPSIS

genshell mat name show_type radius xl yl m n type (params...)

DESCRIPTION

Genshell produces a RADIANCE scene description of a membrane. This function allows to get the minimal surface of a shell (like a soap bubble).

The algorithm for the calculation of the geometry is based on the master research developed by prof. Edna Shaviv in Cornell University.

So far are defined five types of membranes, according to different mathematical functions. According to each function there are a number of parameters to give. There is the possibility of defining the membrane either as a continuous surface, or as a collection of pipes, giving as a result a wire frame membrane. The surfaces that make up the membrane will be modified by mat and their identifiers will begin with name.

OPTIONS

show_type : s - Surfaces, w - wire frame

radius : When show_type is w (wire frame) this option must get a value greater than 0. In show_type s (surface) radius value is irrelevant, however you must give any (0).

xl yl : Lenght and wide of the shell

m n : Number of divisions of the shell (Recomm. an even No., and that m = n)

Types are : P, E, C, L, T

Parameters according to type:

P (parabole) :h1 h2 h3 h4 (Heights in the middle of each side of the shell

E (ellipse) :h1 h2 h3 h4

C (circle) : no arguments L (linear) : ang1 ang2 (Inclination angles)

T (triangle) : ang1 ang2 ang3 ang (Inclination angles for each side of the shell)

EXAMPLE

To create a wire frame Parabolic membrane of 8 units and 10 divisions each side, and with one side of maximal height in the middle of 5 units and also its opposite (m direction --> x) and the third and fourth sides of 10 units height (n direction --> y) looks like this (notice that the radius value is 0.04):

```
genshell red_plastic sh1 w 0.04 8 8 10 10 p 5 5 10 10
```

For the same membrane, but with show_type surface, the example will look:

```
genshell red_plastic sh1 s 0 8 8 10 10 p 5 5 10 10
```

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BUGS

The data input must be entered in the order specifyed in the synopsis.

SEE ALSO

gensurf(1), xform(1)