Subject: 3D heart
Posted by rensheu on Wed, 09 Feb 2005 17:30:15 GMT
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Dear all,

Here goes a funny stuff you might be interested. There is a 3D heart
object could be used for the coming Valentine's day.

Cheers,
R.D.

```
Pro HeartShape
forward_function oHeart

oHeart = Heart3D()

oModel = obj_new('IDLgrModel')
;oModel -> Rotate, [0,0,1],  20
;oModel -> Rotate, [1,0,0], -30

oText = obj_new('IDLgrText', 'Happy Valentine''s Day!!  ', $
            COLOR=[255,250,250], location=[-1.5,-1.3, 0.8],
char_dim=[0.26,0.26], $
            updir=[0,0,1], baseline=[1,0, -0.5])

oGreeting = obj_new('IDLgrText', 'Dear All,', $
              COLOR=[255,250,250], location=[-1.5, 1.3, 0.8],
char_dim=[0.26,0.26], $
              updir=[0,0,1], baseline=[1,0, -0.5])
oName = obj_new('IDLgrText', 'R.D.', $
              COLOR=[255,250,250], location=[0.5, -1.3, -1.2],
char_dim=[0.26,0.26], $
              updir=[0,0,1], baseline=[1,0, -0.5])

oModel -> Add, oHeart
oModel -> Add, oText
oModel -> Add, oGreeting
oModel -> Add, oName


xobjview, oModel, background=[255, 170, 170], $
        Title='Happy Valentine''s Day!! <:o)', scale=0.72

for i=0, 50 do $
   XOBJVIEW_ROTATE, [1,0,-0.5], -1 ;, /PREMULTIPLY
```

```
return
End

Function Heart3D
; This heart shape curve is referring to the following URL:
; http://www.mathematische-basteleien.de/heart.htm
; Threedimensional curve, source: Gabriel Taubin [for example
MathWorld]
; (X^2+(9./4.)*Y^2+Z^2-1.)^3 - X^2*Z^3 - (9./80.)*Y^2*Z^3 = 0.


NX = 250  ;resolution
NY = 8

For j=0, NY do begin
   Y =  2./3.*1.1*(-1+ 1./NY*j)
   for i=0, NX do begin
      X = -1.5 + 3.0/NX*i
      a = 1.0
      b = (X^2+9./80.*Y^2)^(1./3.)
      c = (X^2+9.*Y^2/4.-1.0)
      det = b^2 - 4.*a*c
      if(det ge 0.0) then $
         if(N_ELEMENTS(rVert1) le 1) then $
            rVert1 = [X, -(-b+sqrt(det))/(2.*a), Y ] $
         else begin
            rVert1 = [[rVert1], [X, -(-b+sqrt(det))/(2.*a), Y]]
            rVert1 = [[X, -(-b-sqrt(det))/(2.*a), Y], [rVert1]]
         endelse
   Endfor
   if (N_ELEMENTS(rVert1) ge 3) then begin
      if (N_ELEMENTS(oROI) eq 0) then $
         oROI = obj_new('IDLgrROI', rVert1) $
      else $
         oROI = [oROI, obj_new('IDLgrROI', rVert1)]
      endif
      rVert1 = 0
   endfor

oROIGROUP = obj_new('IDLgrROIGroup')
oROIGROUP -> Add, oROI

result = oROIGROUP -> Computemesh(rVert, rConn, capped=2)

obj_destroy, oROI
obj_destroy, oROIGROUP

rVert1 = rVert
```

```
rVert1[2,*] = abs(rVert1[2,*])

result = mesh_merge(rVert, rConn, rVert1, rConn)
oObj = obj_new('IDLgrPolygon', rVert, Style=2, COLOR=[255,0,0],
POLYGON=rConn, shading=1)

return, oObj

End
```
