Subject: Is there a simple way to describe and plot a simple geometry
Posted by OliverS on Fri, 07 Nov 2008 09:52:02 GMT

Hi everyone.

I have a problem with finding a adequate way of plotting results of my simulations.

The model has a fixed geometry consisting of several identical cylinders. I want to plot a cut showing the x-y plane, where I color the circles in dependence of the results.

My first idea to resolve the problem was plotting circles defined with USERSYM at the specified positions. But I am not happy with this solution because it is very difficult to get the right proportions between symbolsize and distance between the positions in the plot.

a short code sample of my first idea:

```
X = (INDGEN(196)/14)*0.63 + 0.63
Y = (INDGEN(196) MOD 14)*0.63 + 0.63
; Make a vector of 16 points, A[i] = 2pi/16:
A = FINDGEN(17) * (!PI*2/16.)
R = 3
; Define the symbol to be a unit circle with 16 points,
; and set the filled flag:
USERSYM, COS(A)*R, SIN(A)*R, /FILL
plot, x,y, LINESTYLE=3, PSYM=8, XRANGE=[0,10], YRANGE=[0,10]
```

I would be very glad vor any advice how to solve the problem in a better way.

Subject: Re: Is there a simple way to describe and plot a simple geometry
Posted by Wout De Nolf on Fri, 07 Nov 2008 13:42:08 GMT

On Fri, 7 Nov 2008 01:52:02 -0800 (PST), OliverS
<o.schitthelm@fz-juelich.de> wrote:

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> USERSYM at the specified positions. But I am not happy with this
> solution because it is very difficult to get the right proportions
> between symbolsize and distance between the positions in the plot.

Well, object graphics will solve the symbol size problem (see below).

The combination of R for the Polygon data and the SIZE keyword for the symbol will give you the correct radius (=R*size).

But if you want different colors for each symbol, I wouldn't know how to avoid loops. Plotting filled circles with different offsets and colors in direct graphics will be the easiest:

```
X=...
Y=...
n=n_elements(x)
plot, x,y,/nodata,/iso
A = FINDGEN(17) * (!PI*2/16.)
R= 0.2
X0= COS(A)*R
Y0= SIN(A)*R
col=...
for i=0,n-1 do POLYFILL, X0+X[i],Y0+Y[i], COLOR=col[i],/data
```

----Begin Code----

```
; Your data
X = (INDGEN(196)/14)*0.63 + 0.63
Y = (INDGEN(196) MOD 14)*0.63 + 0.63
xr=[0,10]
yr=[0,10]
A = FINDGEN(17) * (!PI*2/16.)
R= 0.2
X0= COS(A)*R
Y0= SIN(A)*R
color=[255,0,0]

; "Simple" object graphics pfff
oWindow = OBJ_NEW('IDLgrWindow')
oView = OBJ_NEW('IDLgrView')
oModel = OBJ_NEW('IDLgrModel')

oCircle = OBJ_NEW('IDLgrPolygon',x0,y0,color=color)
oSymbol = OBJ_NEW('IDLgrSymbol',oCircle,size=1)
oPlot =
 OBJ_NEW('IDLgrPlot',x,y,xrange=xr,yrange=yr,symbol=oSymbol,l inestyle=6)
oPlot -> GetProperty, XRANGE=xr, YRANGE=yr
xrn=norm_coord(xr)
yrn=norm_coord(yr)
oPlot->SetProperty, XCOORD_CONV=xrn, YCOORD_CONV=yrn

oXAxis = OBJ_NEW('IDLgrAxis', 0, RANGE=[xr[0], xr[1]])
oXAxis -> SetProperty, XCOORD_CONV=norm_coord(xr)
```

```
oYAxis = OBJ_NEW('IDLgrAxis', 1, RANGE=[yr[0], yr[1]])
oYAxis -> SetProperty, YCOORD_CONV=norm_coord(yr)
oXAxis -> SetProperty, TICKLEN=0.005
oYAxis -> SetProperty, TICKLEN=0.005

oModel->Add,oXAxis
oModel->Add,oYAxis
oModel->Add,oPlot
oView->Add, oModel
SET_VIEW, oView, oWindow
oWindow->draw, oView

oHolder = OBJ_NEW('IDL_Container')
oHolder->Add,oWindow
oHolder->Add,oView
oHolder->Add,oCircle
oHolder->Add,oSymbol
;obj_destroy,oHolder
```

----End Code----

Subject: Re: Is there a simple way to describe and plot a simple geometry
Posted by pgrigis on Fri, 07 Nov 2008 14:50:14 GMT
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Use polyfill to fill the circles instead.
It won't be extremely fast, but I am sure
it still is negligible compared with the
runtime of your simulation ;-)

Ciao,
Paolo

OliverS wrote:
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