ShellGrid

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1 介绍

ShellGrid类用于生成网架结构。

2 类结构

Object Structure

Type		
Section		
Name	VP	
Material	PP	
JointType	nx	Assembly
Gravity	kn	BeamMesh
Echo	span	Shape
BoundaryType	f	Matrix

Type
- input
- output
- params
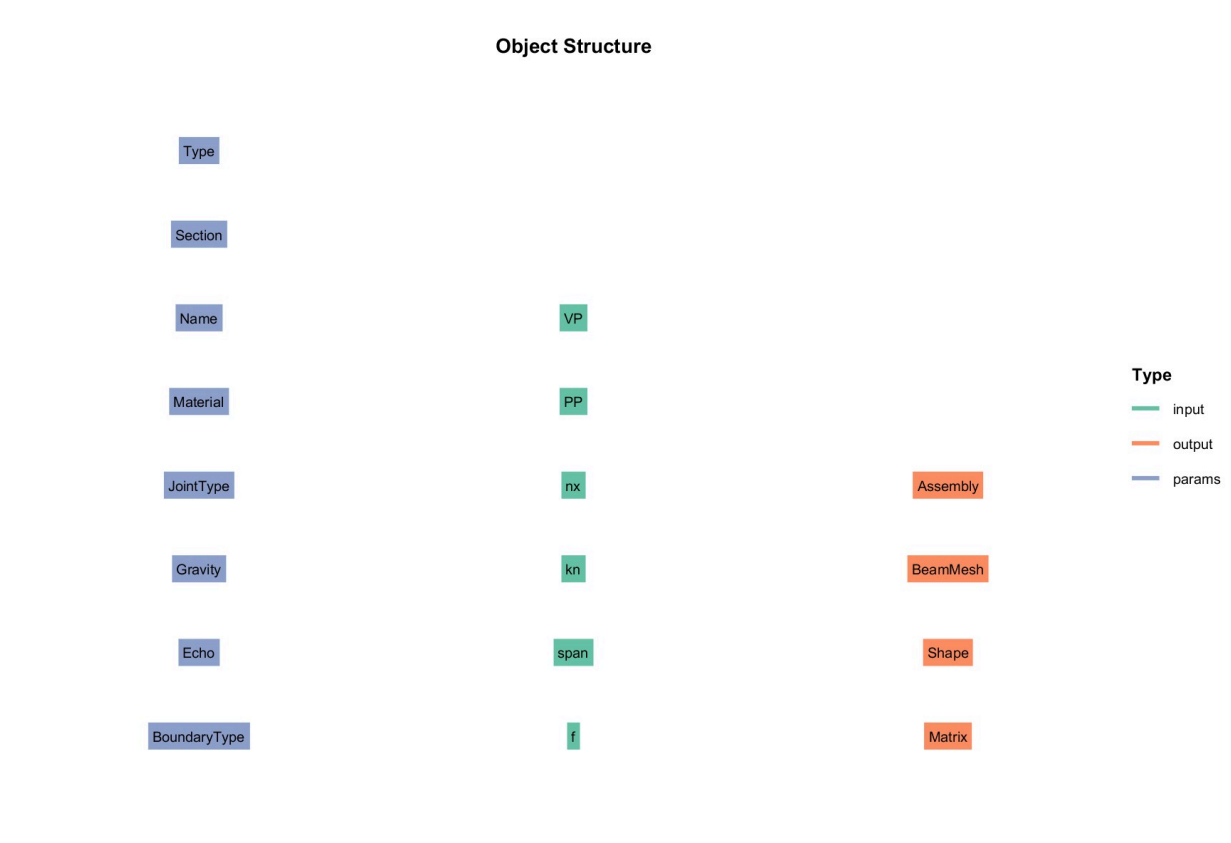
输入 input：

- VP：可变荷载
- PP：永久荷载
- ny:
- nx:
- kn: 参数
- span: 参数
- f: 高

参数 params：

- Name：名称
- Section：截面属性
- Material: 材料
- Type：网架类型
- JointType：节点类型

- Gravity : 重力
- BoundaryType : 边界类型

输出 output :

- Assembly : 装配体
- BeamMesh : 梁网格
- Matrix : 分类信息
- Shape : 外形

3　案例

3.1　Create ShellGrid Type 1 (Flag=1)

```
1   % Section
2   Section{1,1}.type="beam";
3   Section{1,1}.subtype="CTUBE";
4   Section{1,1}.data=[55,60];
5
6   Section{2,1}.type="beam";
7   Section{2,1}.subtype="CTUBE";
8   Section{2,1}.data=[55,60];
9
10  inputStruct.f=6800;
11  inputStruct.span=30000;
12  inputStruct.kn=24;
13  inputStruct.nx=6;
14  inputStruct.PP=2000/10^6;
15
16  paramsStruct.Section=Section;
17  obj= structure.ShellGrid(paramsStruct, inputStruct);
18  obj= obj.solve();
19
20  ANSYS_Output(obj.output.Assembly);
21  Plot3D(obj,'BeamGeom',1,'boundary',1,'load',1,'load_scale',0.3,'endrelease',1)
```
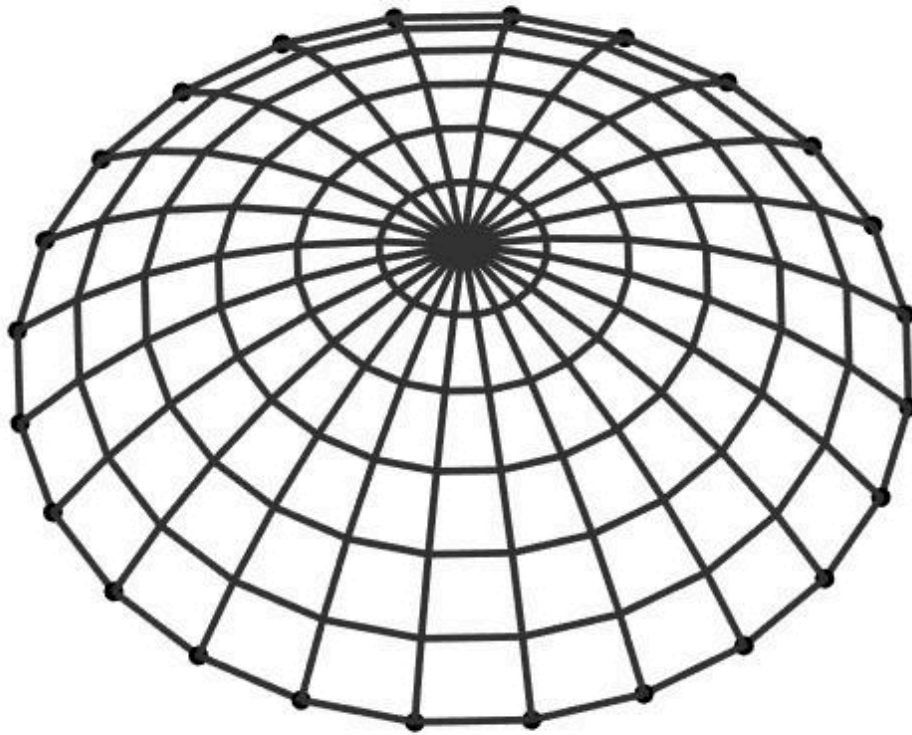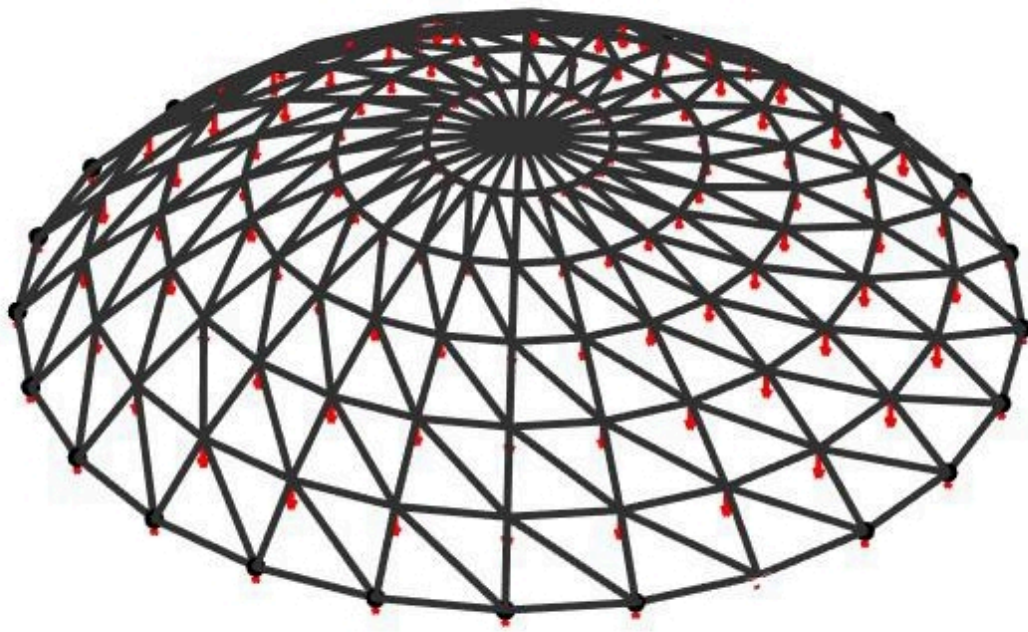
3.2 Create ShellGrid Type 2 (Flag=2)

```
1   % Section
2   Section{1,1}.type="beam";
3   Section{1,1}.subtype="CTUBE";
4   Section{1,1}.data=[55,60];
5
6   Section{2,1}.type="beam";
7   Section{2,1}.subtype="CTUBE";
8   Section{2,1}.data=[55,60];
9
10  Section{3,1}.type="beam";
11  Section{3,1}.subtype="CTUBE";
12  Section{3,1}.data=[55,60];
13
14  inputStruct.f=6800;
15  inputStruct.span=30000;
16  inputStruct.kn=24;
17  inputStruct.nx=6;
18  inputStruct.VP=2000/10^6;
19
20  paramsStruct.Section=Section;
21  paramsStruct.Type=2;
22  obj= structure.ShellGrid(paramsStruct, inputStruct);
23  obj= obj.solve();
24
25  ANSYS_Output(obj.output.Assembly);
26  Plot3D(obj,'BeamGeom',1,'boundary',1,'load',1,'load_scale',0.3,'endrelease',1)
```
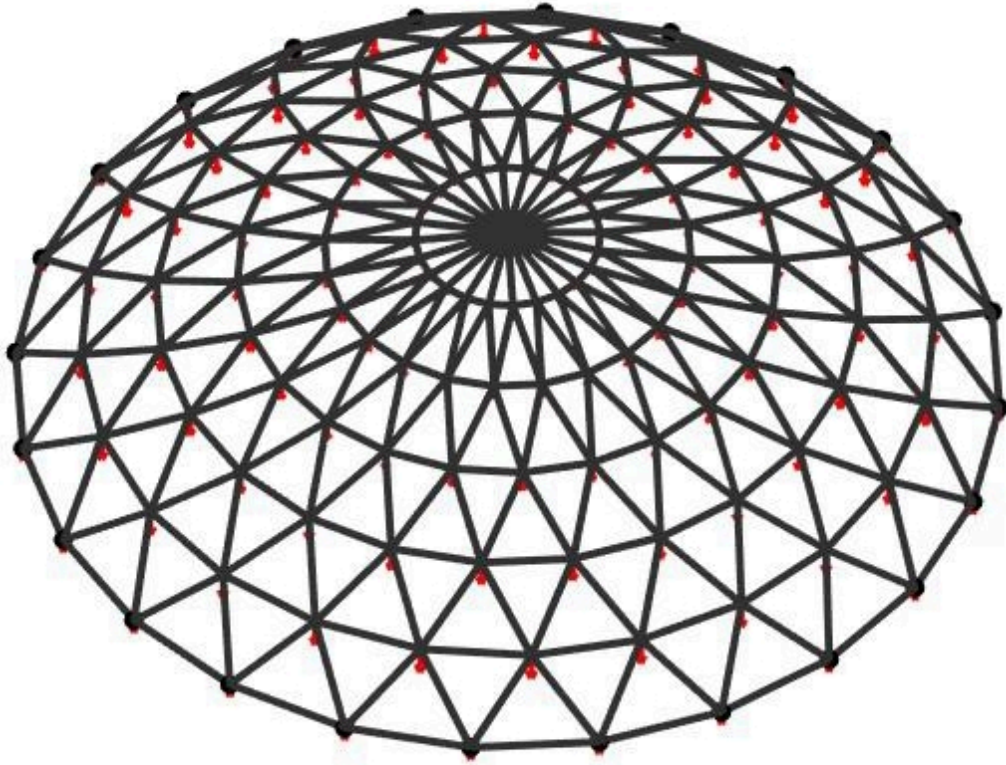
3.3 Create ShellGrid Type 3 (Flag=3)

```
1   % Section
2   Section{1,1}.type="beam";
3   Section{1,1}.subtype="CTUBE";
4   Section{1,1}.data=[55,60];
5
6   Section{2,1}.type="beam";
7   Section{2,1}.subtype="CTUBE";
8   Section{2,1}.data=[55,60];
9
10  inputStruct.f=6800;
11  inputStruct.span=30000;
12  inputStruct.kn=24;
13  inputStruct.nx=6;
14  inputStruct.VP=2000/10^6;
15
16  paramsStruct.Section=Section;
17  paramsStruct.Type=3;
18  obj= structure.ShellGrid(paramsStruct, inputStruct);
19  obj= obj.solve();
20
21  ANSYS_Output(obj.output.Assembly);
22  Plot3D(obj,'BeamGeom',1,'boundary',1,'load',1,'load_scale',0.3,'endrelease',1)
```
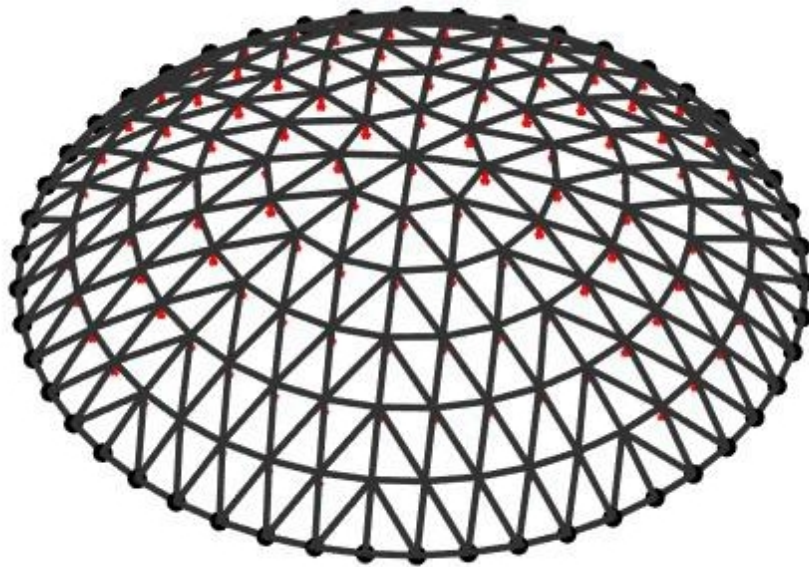
3.4   Create ShellGrid Type 4 (Flag=4)

```
1   % Section
2   Section{1,1}.type="beam";
3   Section{1,1}.subtype="CTUBE";
4   Section{1,1}.data=[55,60];
5
6   Section{2,1}.type="beam";
7   Section{2,1}.subtype="CTUBE";
8   Section{2,1}.data=[55,60];
9
10  inputStruct.f=6800;
11  inputStruct.span=30000;
12  inputStruct.kn=8;
13  inputStruct.nx=6;
14  inputStruct.VP=2000/10^6;
15
16  paramsStruct.Section=Section;
17  paramsStruct.Type=4;
18  obj= structure.ShellGrid(paramsStruct, inputStruct);
19  obj= obj.solve();
20
21  ANSYS_Output(obj.output.Assembly);
22  Plot3D(obj,'BeamGeom',1,'boundary',1,'load',1,'load_scale',0.3,'endrelease',1)
```

4 参考文献

[1] 空间钢结构APDL参数化计算与分析