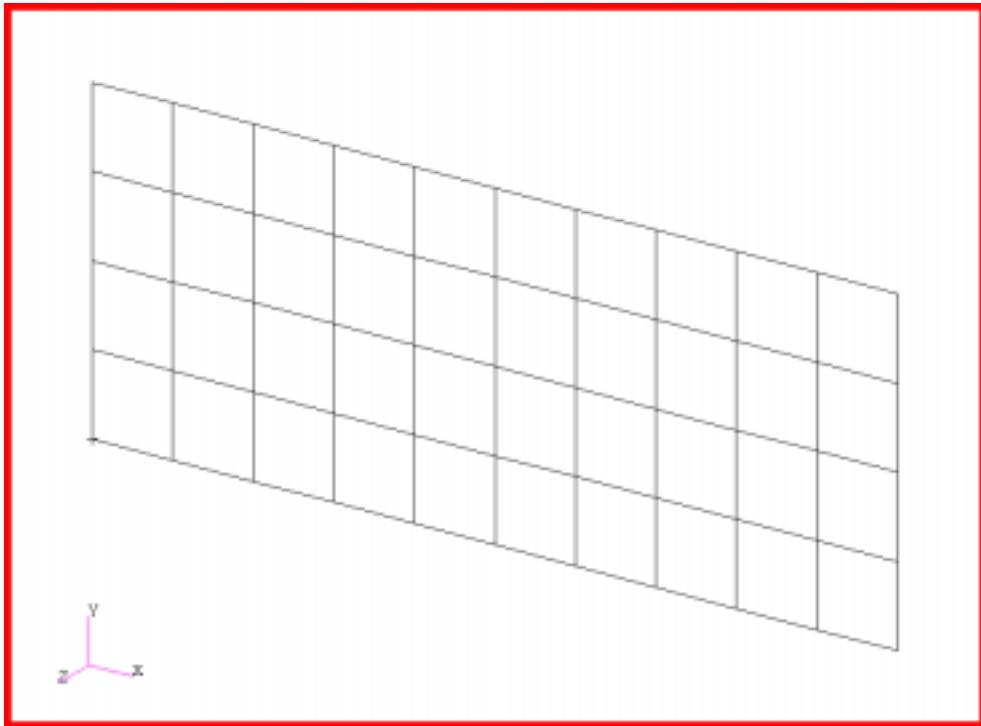

LESSON 18

Post-Processing Transient Response With Results



Objectives:

- Animate Transient Structural response.
- Create x-y plots of structural displacement versus time.

Model Description:

In this exercise the transient response of a simple plate structure will be displayed over time. Also, x-y plots of nodal displacement as a function of time will be created.

Suggested Exercise Steps:

- Create a new database named **plate.db** and read in the MSC/NASTRAN model and results file `plate_vibration.op2` in the Analysis form.
- Select result cases, deformation result type, and result component in Results, Create, Deformation, Select Results.
- Specify target entities in Results, Create, Deformation, Target Entities, Target Entity (Current Viewport).
- Specify deformed color, line style, scale factor(0.25) under Results, Create, Deformation, Display Attributes.
- Set animation parameter values in Results, Create, Deformation, Animation Options. Experiment with the number of frames used to represent the transient motion of the plate structure.
- Create x-y plot of the nodal degree-of-freedom versus time in Results, Create, Graph, Yvs X, Select Results, Target Entities.

Exercise Procedure:

1. Create a new database and name it **plate**.

File/New...

New Database Name:

The viewport (PATRAN's graphics window) will appear along with a *New Model Preference* form. The *New Model Preference* sets all the code specific forms and options inside MSC/PATRAN.

In the *New Model Preference* form set the *Analysis Code* to **MSC/NASTRAN**.

Tolerance: **◆ Default**

Analysis Code: **MSC/NASTRAN**

Analysis Type: **Structural**

OK

2. Import the plate model and results.

◆ Analysis

Action: **Read Output2**

Object: **Both**

Method: **Translate**

Select Results File...

Selected Results File: **plate_vibration.op2**

OK

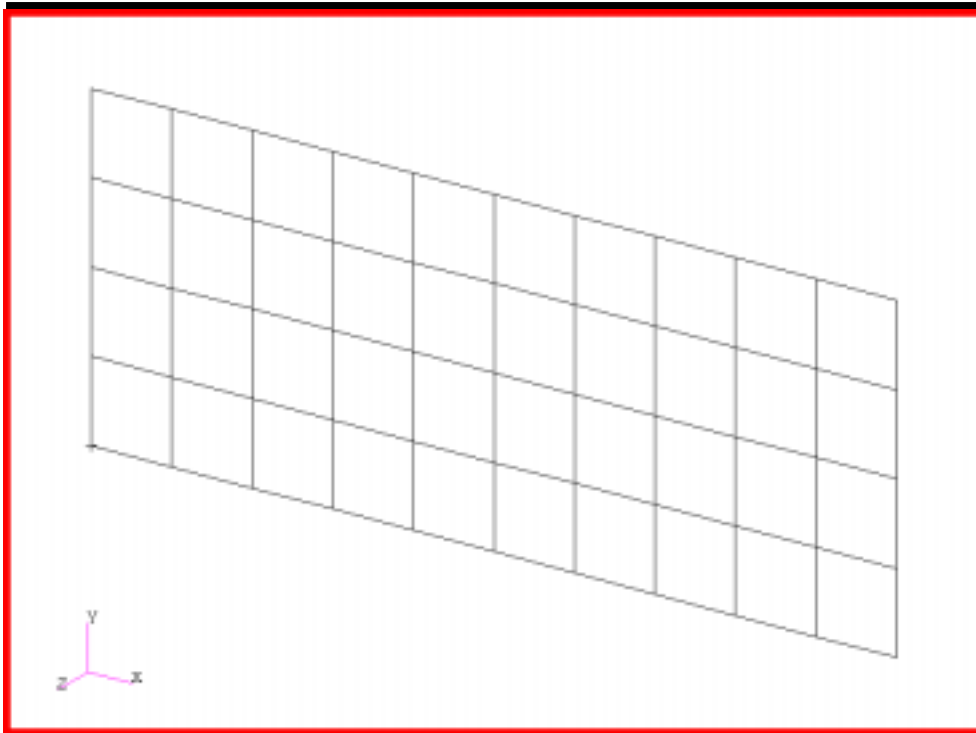
Apply

Change the view and display by using the following toolbar icon:



Iso 1 View

Your model should look like the one shown below. Note that the structure is a simple plate.



3. Select result cases, deformation result type, and result component in Results, Create, Deformation, Select Results.

◆ **Results**

Action:

Create

Object:

Deformation

Click the Select Results Button



Click on the Select Result Case(s) button, select subcases.

Set the form, Select Result Case(s) as follows:

Filter Method:

Global Variable

Values:

Range

Min:

Max:

Filter

Apply

Close

Show As:

XX YY ZZ

Animate

Note: Do not Click on Apply!

- Specify target entities in Results, Create, Deformation, Target Entities, Target Entity (Current Viewport)

Click on the Target Entities button



Target Entity:

- Specify deformed color, line style, scale factor(0.25) under Results, Create, Deformation, Display Attributes.

Click on the Display Attributes button



Deformed:

Line Style:

Scale Factor:

- Set animation parameter values in Results, Create, Deformation, Animation Options. Experiment with the number of frames used to represent the transient motion of the plate structure.

Click on the Animation Options.



<i>Animate By:</i>	<input type="text" value="Global Variable"/>
<i>Select Global Variable:</i>	<input type="text" value="Time"/>
<i>Animation Graphics:</i>	<input checked="" type="checkbox"/> 3D
<i>Number of Frames:</i>	<input type="text" value="20"/>
<input type="button" value="Apply"/>	

In the Animation Control Form change the Animation Sequence

Cycle

Now try changing the number of frames:

<input type="button" value="Stop Animation"/>	
<i>Number of Frames:</i>	<input type="text" value="10"/>
<input type="button" value="Apply"/>	

Stop the Animation and reset the graphics.

Click on the Reset Graphics Icon.



7. Create an XY plot of nodal degree of freedom versus time.

<i>Action:</i>	<input type="text" value="Create"/>
<i>Object:</i>	<input type="text" value="Graph"/>
<i>Method:</i>	<input type="text" value="Y vs X"/>

Click on the Select Results button.



Quantity:

Z Component

X:

Global Variable

Variable:

Time

Click on the Target Entities button.



Select the Nodes that are going to be mapped in the xy plot

Target Entity:

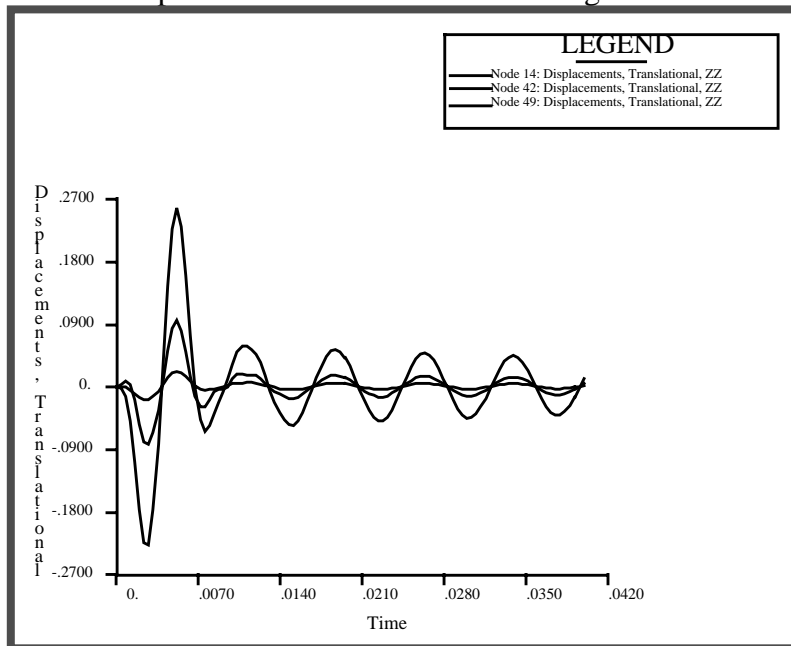
Nodes

Select Nodes:

select 2 or 3 nodes

Apply

The XY plot should look like the following:



When done, close the database and quit PATRAN.

File/Quit

