



MIDAS

MESH FREE

隨機振動

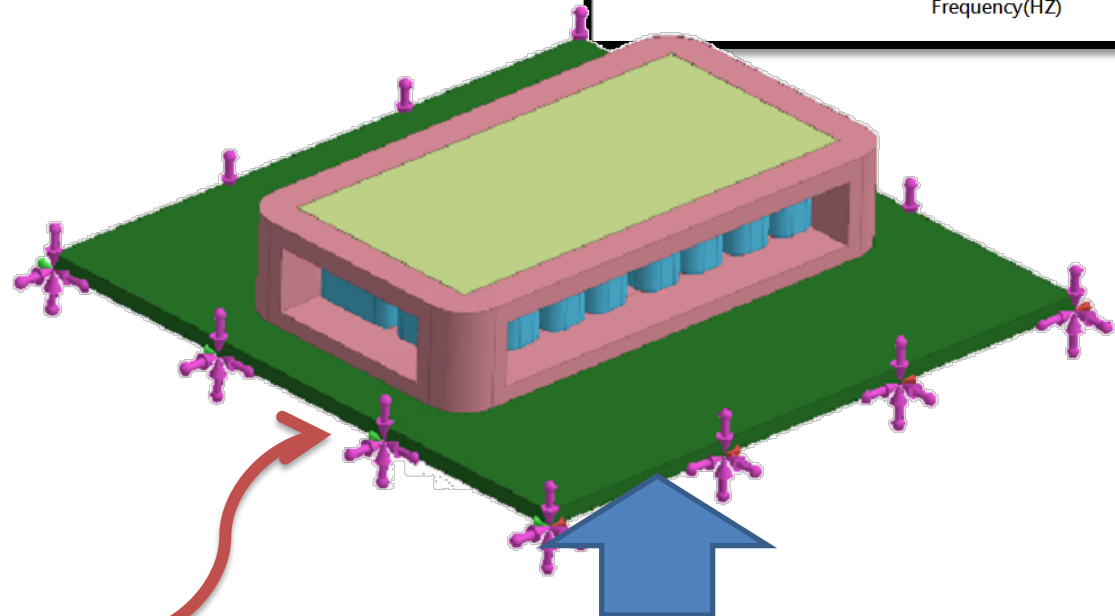
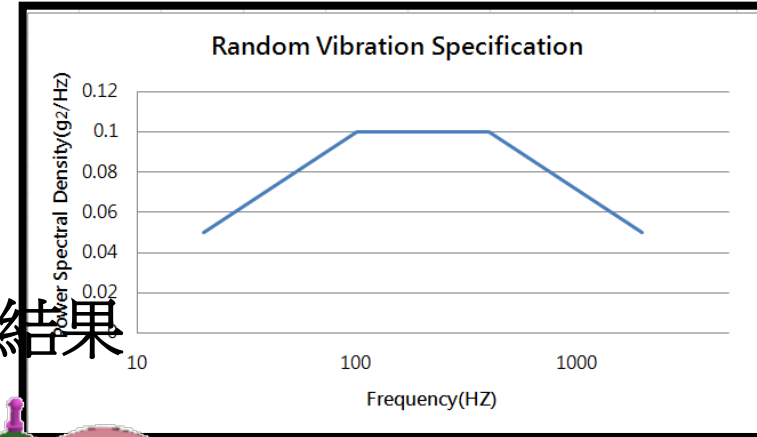
EX1.車用電池組

Simple, but Everything.

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計算:0~2000Hz  
0.01mm晃動之隨機振動結果



固定底板X,Y,Z

0.01mm

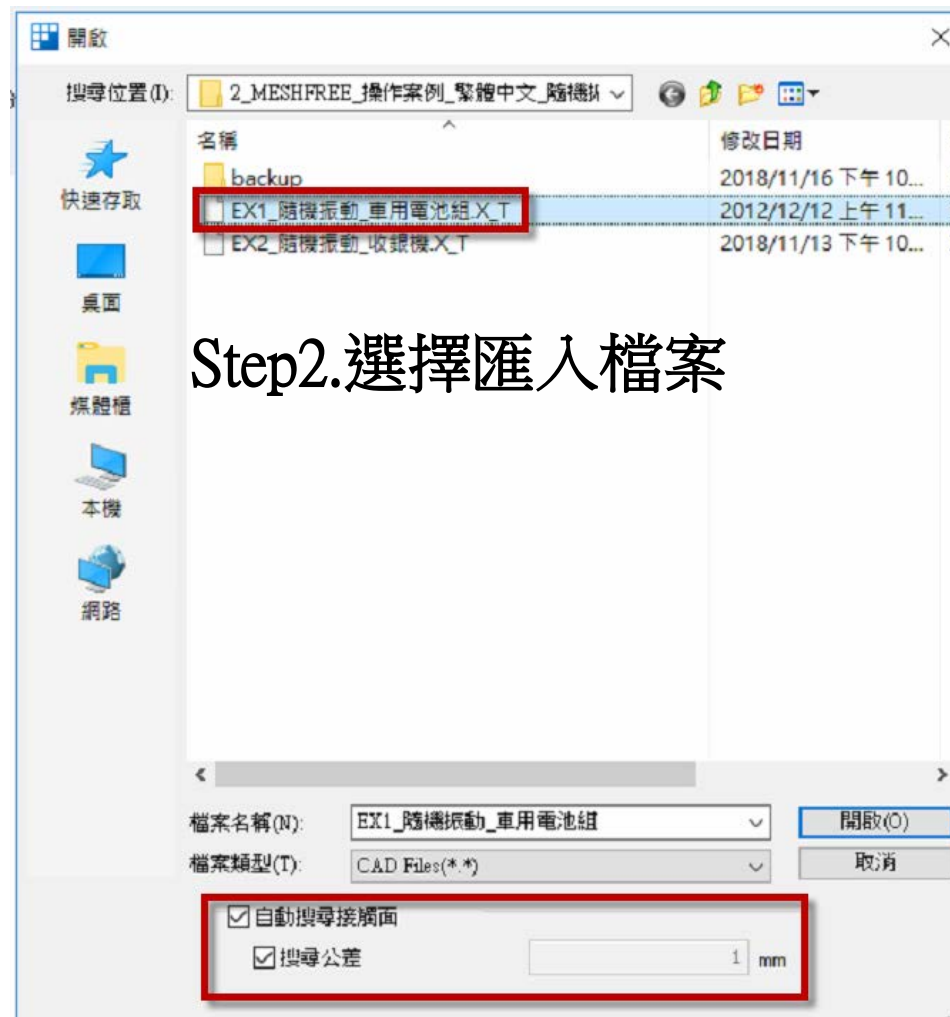
隨機響應-模態法



## Step1.匯入3D 模型

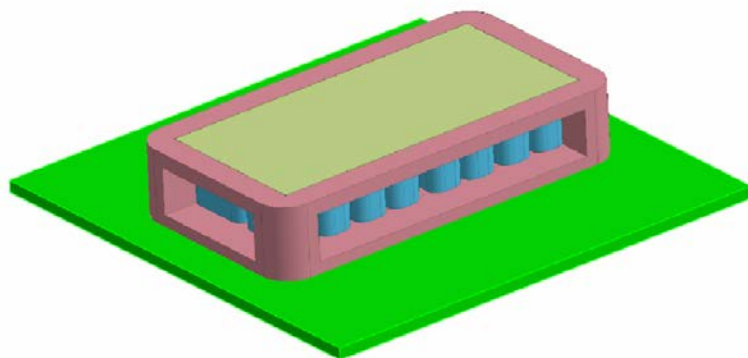
## MeshFree支援各類CAD 格式

Parasolid (9 - 29) Files (\*.x\_t;\*.xmt\_tbt;\*.x\_b;\*.xmt\_bin)  
 ACIS (R1 - 2017 1.0) Files (\*.sat;\*.sab;\*.asat;\*.asab)  
 STEP (AP203, AP214, AP242) Files (\*.stp;\*.step)  
 IGES (Up to 5.3) Files (\*.igs;\*.iges)  
 Pro-E (16 - Creo 3.0) Files (\*.prt;\*.prt.\*;\*.asm;\*.asm.\*)  
 CATIA V4 (CATIA 4.1.9 - 4.2.4) Files (\*.model;\*.exp;\*.session)  
 CATIA V5 (V5R8 - V5-6R2016) Files (\*.CATPart;\*.CATProduct)  
 Solid Works (98 - 2017) Files (\*.sldprt;\*.sldasm)  
 Unigraphics (11 - NX11) Files (\*.prt)  
 Inventor Part (V6 - V2017) Files (\*.ipt)  
 Inventor Assembly (V11 - V2017) Files (\*.iam)  
 Solid Edge (V18 - ST9) Files (\*.par;\*.asm;\*.psm)



## Step3.開啓自動搜尋接觸面

# 框選夾具特徵



模型		
	材料	顏色
<input checked="" type="checkbox"/> <input type="checkbox"/> 幾何(19)		
<input checked="" type="checkbox"/> <input type="checkbox"/> 夾具	Alloy Steel	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊16	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊15	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊14	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊13	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊12	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊11	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊10	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊9	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊8	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊7	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊6	未指定	
<input checked="" type="checkbox"/> <input type="checkbox"/> 電池蕊5	未指定	

僅顯示此部件

隱藏

編輯格點數量

刪除

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初始溫度

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重力

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材料

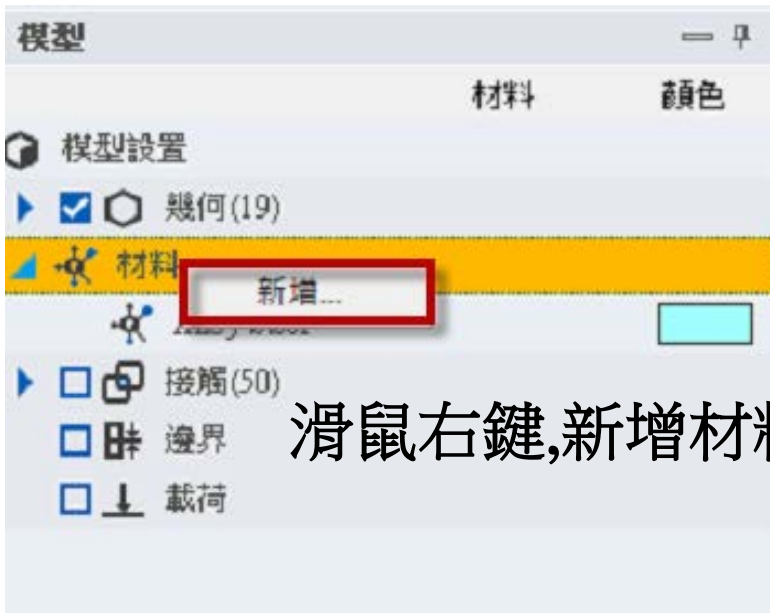
Alloy Steel

添加: 材料

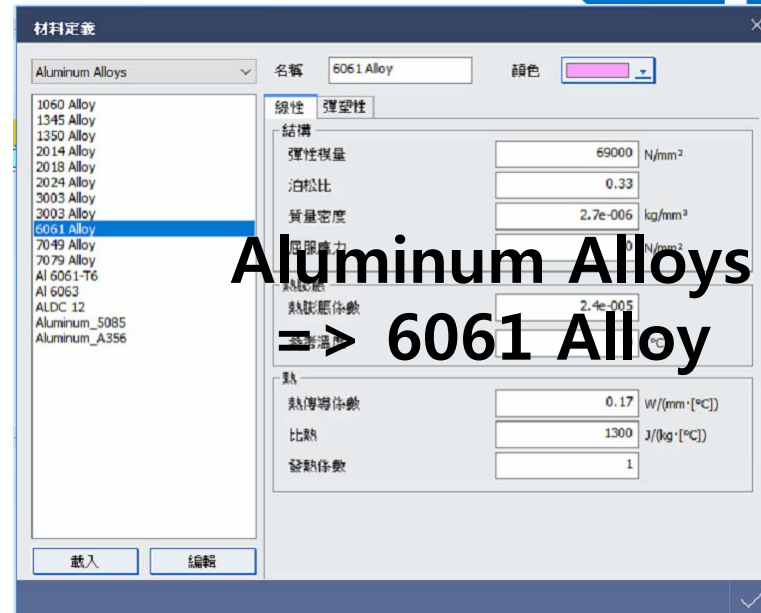
滑鼠右鍵,材料定義



模型樹會顯示指定的材料



滑鼠右鍵,新增材料



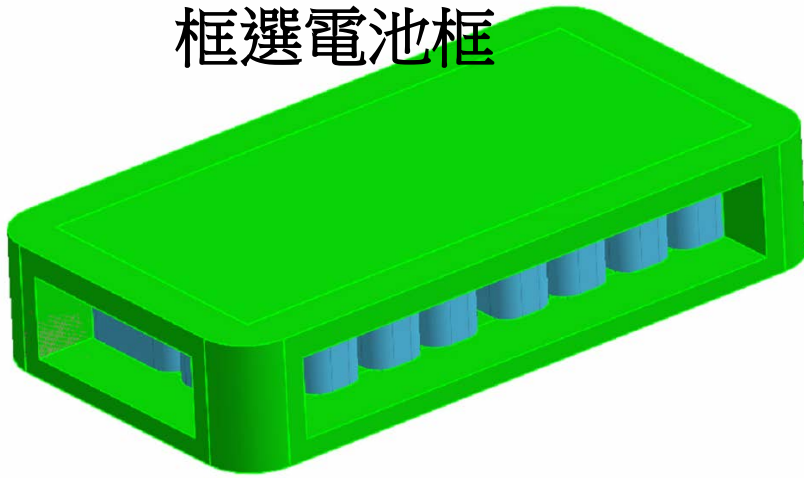
Aluminum Alloys  
=> 6061 Alloy



Plastics  
=> PP (Homopolymer, flame retarded V0)



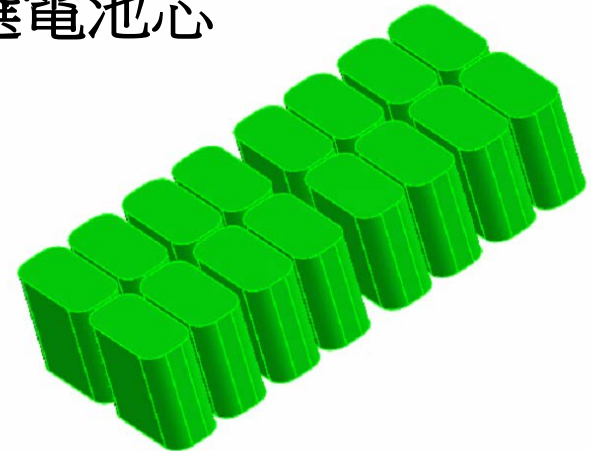
框選電池框



指定 6061 Alloy



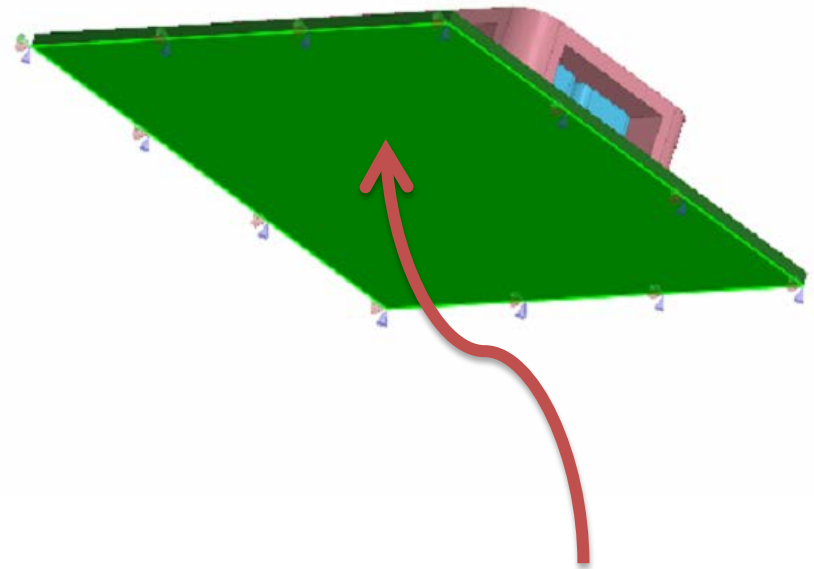
框選電池芯



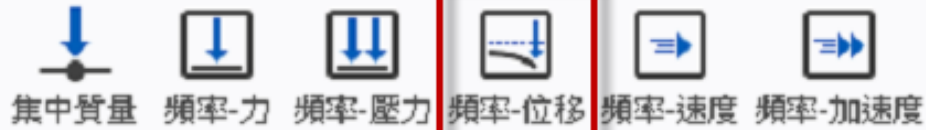
指定PP

(Homopolymer, flame retarded V0)

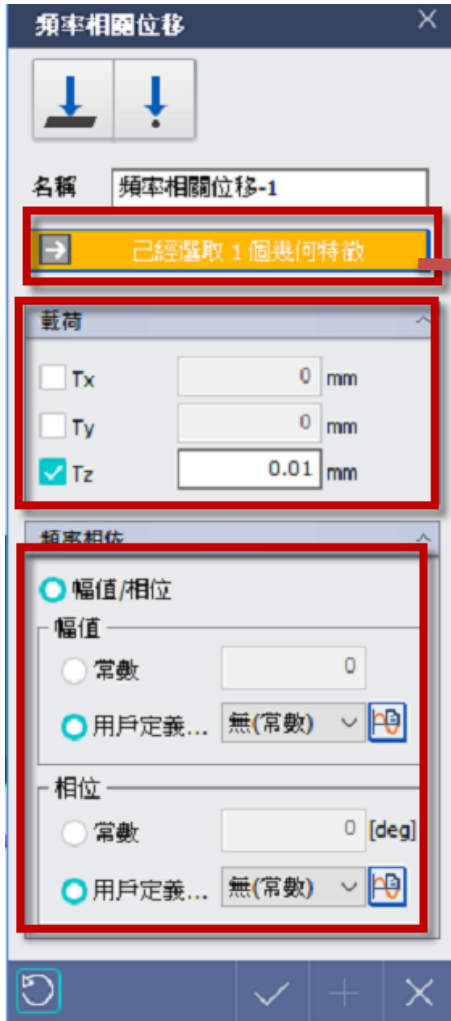




選取夾具底面



載荷



選取底面

z方向施加0.01mm

均勻受激振0.01mm  
不考慮幅值/相位變化

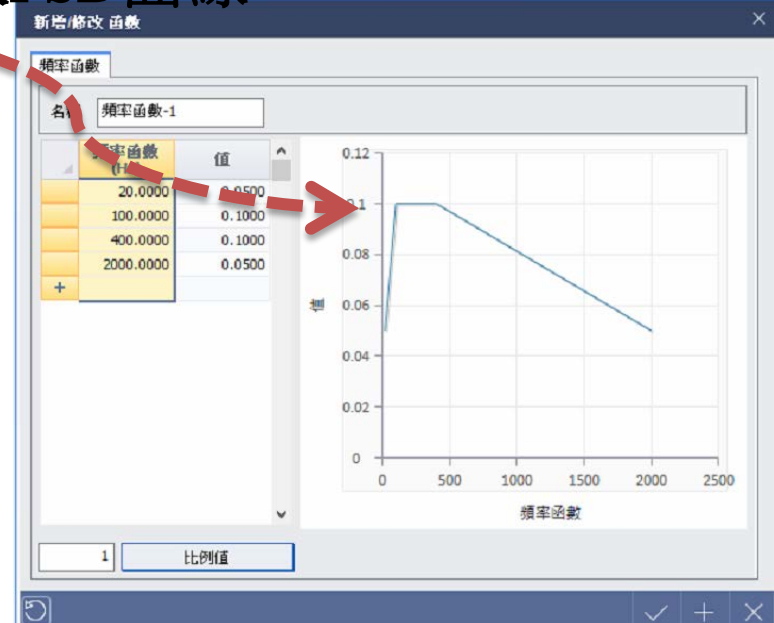




Frequency(HZ)	Power Spectral Density(g2/Hz)
20	0.05
100	0.1
400	0.1
2000	0.05

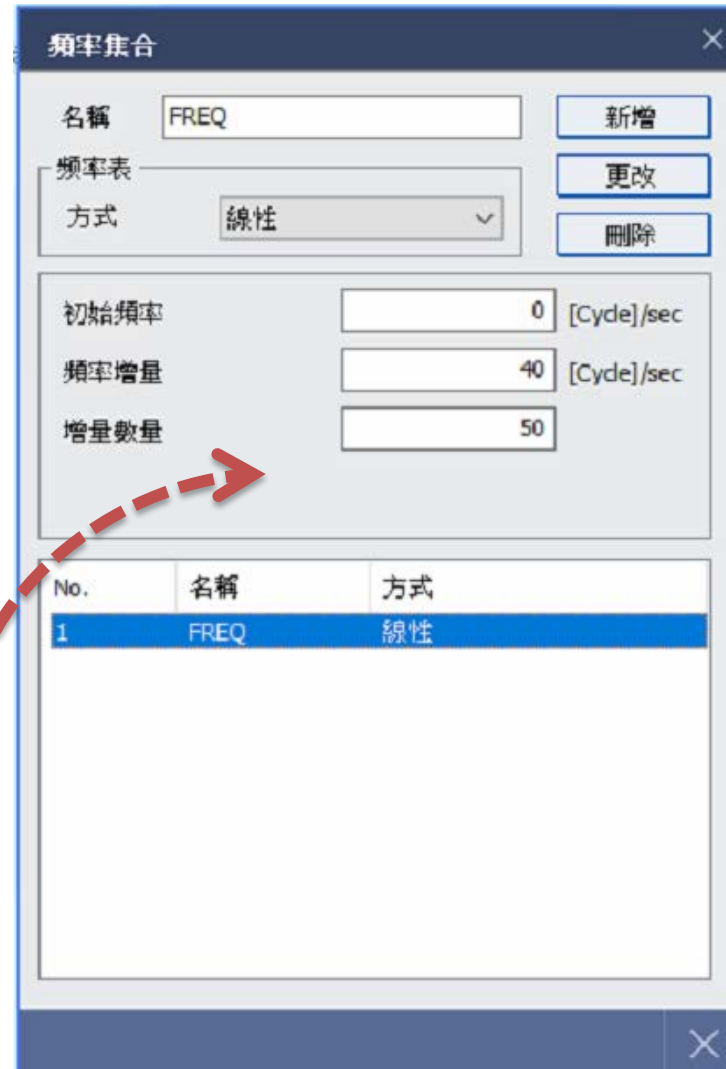


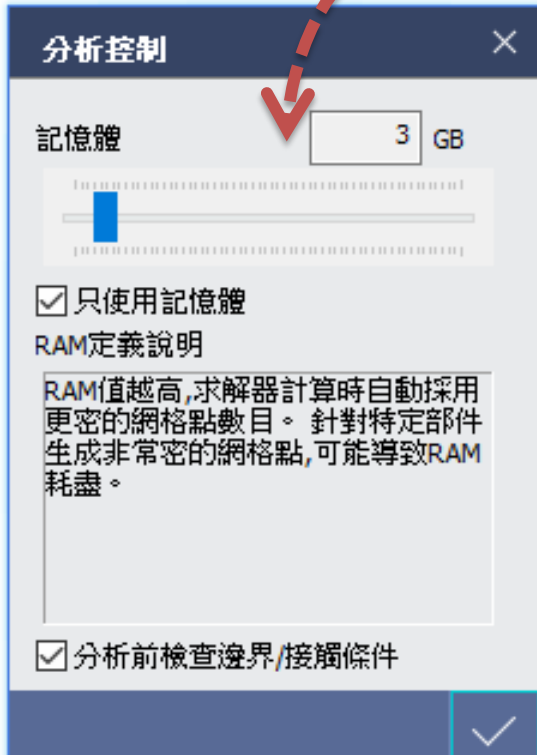
輸入PSD曲線





計算:0~2000Hz 激振  
(其中每50Hz計算一次激振值)





記憶體大小  
1. 計算速度  
2. 分析準確性

# 匯出計算資訊

Export Mec File

49%

匯出幾何數據...

取消

進行求解

求解程序 [1/1]

- 自動網狀計算
- 網狀創建
- 接觸搜索
- 設置
- 剛度計算
- 質量計算
- 特徵值分析
- 分析結果

取消

MEMORY ESTIMATION: TRIAL = 1, TOTAL DOF = 24669  
 MEMORY ESTIMATION: TRIAL = 2, TOTAL DOF = 242355

319.6077, 538.6379, 310.5366

上午 10:24  
2018/11/19

The screenshot displays the MIDAS MeshFree software interface. The main window shows a 3D model of a mechanical part with a modal analysis progress window overlaid. The progress window is titled "求解程序 [1/1]" and shows a progress bar at 37%. The progress window includes a list of steps:

- 自動網點計算
- 網點創建
- 接觸搜索
- 設置
- 剛度計算
- 質量計算
- 特徵值分析
- 分析結果

Below the progress window, there are two graphs:

**Maximum Displacement vs. Frequency**

The graph shows Maximum Displacement on the y-axis (ranging from 0.00e+000 to 3.00e-002) and Frequency on the x-axis (ranging from 0.00e+000 to 3.00e+003). A sharp peak is visible at approximately 1.8e+003 Hz, reaching a maximum displacement of about 2.8e-002.

**Maximum Rotation vs. Frequency**

The graph shows Maximum Rotation on the y-axis and Frequency on the x-axis (ranging from 0.00e+000 to 3.00e+003). The rotation values are very low, near zero, across the entire frequency range.

The software interface also includes a left sidebar with a tree view showing the model setup, including materials (Alloy Steel, 6061 Alloy, PP (Homopolymer, fl)), boundary conditions, and analysis settings. The bottom status bar shows the system tray with the date and time: 上午 10:29, 2018/11/19.



分析結果 模擬表 查詢 曲線結果 結果檔

實際 無網點

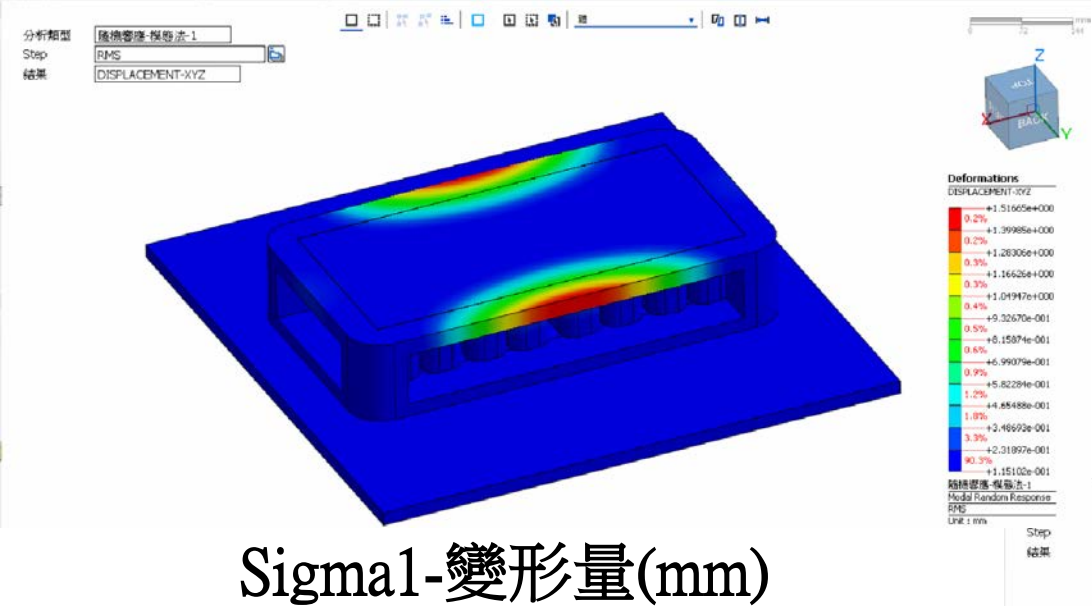
**Sigma 1**

科學記號 小數點位數 5

連續輪廓 特徵線視圖 刻度顯示

最大/最小 動畫

分析結果 變形 數值顯示 顯示



Sigma1-變形量(mm)

Sigma1-應力(MPa)

