

## Tutorial – Submit Tool – Gr-ResQ

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This tutorial guides you through the process of submitting data in the Gr-ResQ tool

Gr ResQ

Query Submit OSCM

Add Step

Catalyst: Palladium Dew Point: C

Tube Diameter: 55 mm

Cross Sectional Area: 2376 mm<sup>2</sup>

Tube Length: 760 mm

Base Pressure: 0.015 Torr

Thickness: 0.2 um

Diameter: um

Length: um

Sample Surface Area: 50 mm<sup>2</sup>

Remove Step Clear Fields Submit to OSCM

Next >>>

Preparation Properties File Upload Provenance Review

Storage (manage) 5% of 10GB 1024 x 768

The **Submit Tool** has the following 5 tabs:

1. Preparation
2. Properties
3. File Upload
4. Provenance
5. Review

This tutorial guides you through each of these tabs

### Tab 1: Preparation

Gr ResQ

Query Submit OSCM

Add Step Button

Add Step

Catalyst: Palladium Dew Point: C

Tube Diameter: 55 mm

Cross Sectional Area: 2376 mm<sup>2</sup>

Tube Length: 760 mm

Base Pressure: 0.015 Torr

Thickness: 0.2 um

Diameter: um

Length: um

Sample Surface Area: 50 mm<sup>2</sup>

Synthesis Conditions

Name: Cooling Carbon Source Flow Rate: 0 sccm

Duration: 10 min Cooling Rate: C/min

Furnace Temperature: 100 C

Furnace Pressure: 2 Torr

Sample Location: 0 mm

Helium Flow Rate: 400 sccm

Hydrogen Flow Rate: 0 sccm

Argon Flow Rate: 0 sccm

Carbon Source: CH4

Step Details

Remove Step Clear Fields Submit to OSCM

Next >>>

Preparation Properties File Upload Provenance Review

Remove Step Button

1024 x 768

This tab allows users to enter the details of the recipe used for synthesis of graphene

Enter details about the synthesis environment in the **Synthesis Conditions** section. This section is common for all the steps

Use the **Add Step Button** to add steps and the **Remove Step Button** to remove a step

Enter the details for each step in the **Step Details** section

Select **Next >>>** to go to the next tab

## Tab 2: Properties

Gr ResQ

Query Submit OSCM

Average Thickness of Growth 2.6 nm

St. Dev. of Growth nm

Number of Layers 13

Growth Coverage 87 %

Domain Size um<sup>2</sup>

Shape Nondescript

Clear Fields

NOTE:  
This section optional. Please input any properties data you may have.

Next >>>

Preparation Properties File Upload Provenance Review

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This tab allows users to enter information about the graphene growth

Select **Next >>>** to go to the next tab

## Tab 3: File Upload

Gr ResQ

Query Submit OSCM

Upload SEM Image

Remove SEM Image

Upload Raman Spectroscopy

Wavelength nm

Characteristic Percentage (%):

Remove Raman Spectroscopy

Clear Fields

Next >>>

Preparation Properties File Upload Provenance Review

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Upload SEM Image

Upload Raman Spectroscopy

Pop-up Window

nanohub

Upload

Use this form to upload data. If you don't specify a file for a particular input, that input won't be modified by the Upload operation.

File:

Choose File SEM\_Image.tif

Upload

This tab allows users to upload SEM images and Raman spectrums for their recipe

SEM Images:

- Select **Upload SEM Image**
- A pop-up window will appear
- Select **Choose File** to select a file from your computer
- Select **Upload** to upload the file

Raman Spectrum:

- Select **Upload Raman Spectroscopy**
- A pop-up window will appear
- Select **Choose File** to select a file from your computer
- Select **Upload** to upload the file
- Enter the wavelength of the laser used for the Raman spectroscopy

Select **Next >>>** to go to the next tab

## Tab 4: Provenance

Gr ResQ

Query Submit OSCM

Material Name: Graphene  
 Experiment Date: 5/14/14

First Name: Kaihao  
 Last Name: Zhang  
 Institution: University of Illinois at Urbana-Champaign

New Author Remove Author

Zhang, Kaihao

Clear Fields

Next >>>

Preparation Properties File Upload Provenance Review

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This tab allows users to enter the provenance information for the synthesis

Enter the experiment date and the list of all the authors

Select **Next >>>** to go to the next tab

## Tab 5: Review

Gr ResQ

Query Submit OSCM

**Authors**  
 Zhang, Kaihao [University of Illinois at Urbana-Champaign]

**Properties**

Average Thickness of Growth	2.6 nm
St. Dev. of Growth	None nm
Number of Layers	13
Growth Coverage	87 %
Domain Size	None um <sup>2</sup>
Shape	Nondescript

**Recipe**

Catalyst	Palladium
Tube Diameter	55 mm
Cross Sectional Area	2376 mm <sup>2</sup>
Tube Length	760 mm
Base Pressure	0.015 Torr
Thickness	0.2 um
Diameter	None um
Length	None um
Sample Surface Area	50 mm <sup>2</sup>
Dew Point	None C

Preparation Steps:

**Step 0**

Name	Annealing
Duration	30 min
Furnace Temperature	500 C
Furnace Pressure	1.69 Torr
Sample Location	380 mm
Helium Flow Rate	400 sccm
Hydrogen Flow Rate	0 sccm

Preparation Properties File Upload Provenance Review

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This tab allows users to review all the information before submitting it. Please review all the fields carefully as the information cannot be edited once it has been submitted

Scroll down to see all the rest of the information

Gr ResQ ⚙️ ✖️ Terminate ➡️ Keep for later

Query Submit OSCM

Name	Cooling
Duration	10 min
Furnace Temperature	300 C
Furnace Pressure	2 Torr
Sample Location	0 mm
Helium Flow Rate	400 sccm
Hydrogen Flow Rate	0 sccm
Argon Flow Rate	0 sccm
Carbon Source	CH4
Carbon Source Flow Rate	50 sccm
Cooling Rate	None C/min

**Step 7**

Name	Cooling
Duration	10 min
Furnace Temperature	100 C
Furnace Pressure	2 Torr
Sample Location	0 mm
Helium Flow Rate	400 sccm
Hydrogen Flow Rate	0 sccm
Argon Flow Rate	0 sccm
Carbon Source	CH4
Carbon Source Flow Rate	0 sccm
Cooling Rate	None C/min

**Files**

SEM Image Files:  
/home/nanoHub/aagam2/data/sessions/1564414/SEM\_Image.tif

Raman Wavelength  
532

Raman Spectroscopy Files:  
[] /home/nanoHub/aagam2/data/sessions/1564414/Raman\_Spectrum.txt

Preparation Properties File Upload Provenance Review

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Once all the information has been reviewed, select **Submit** to upload the data

If successful, you will receive a prompt with a confirmation message

If some necessary fields are missing, you will receive a prompt informing you of the same. Navigate to the tab where that field is and enter data in all such fields before submitting the data again