

[Welcome to the AW SpectraCoat Studio](#)

AW SpectraCoat Studio allows you to design, simulate, and analyze thin-film optical coatings effortlessly. Follow the steps below to understand how to use the tool effectively.

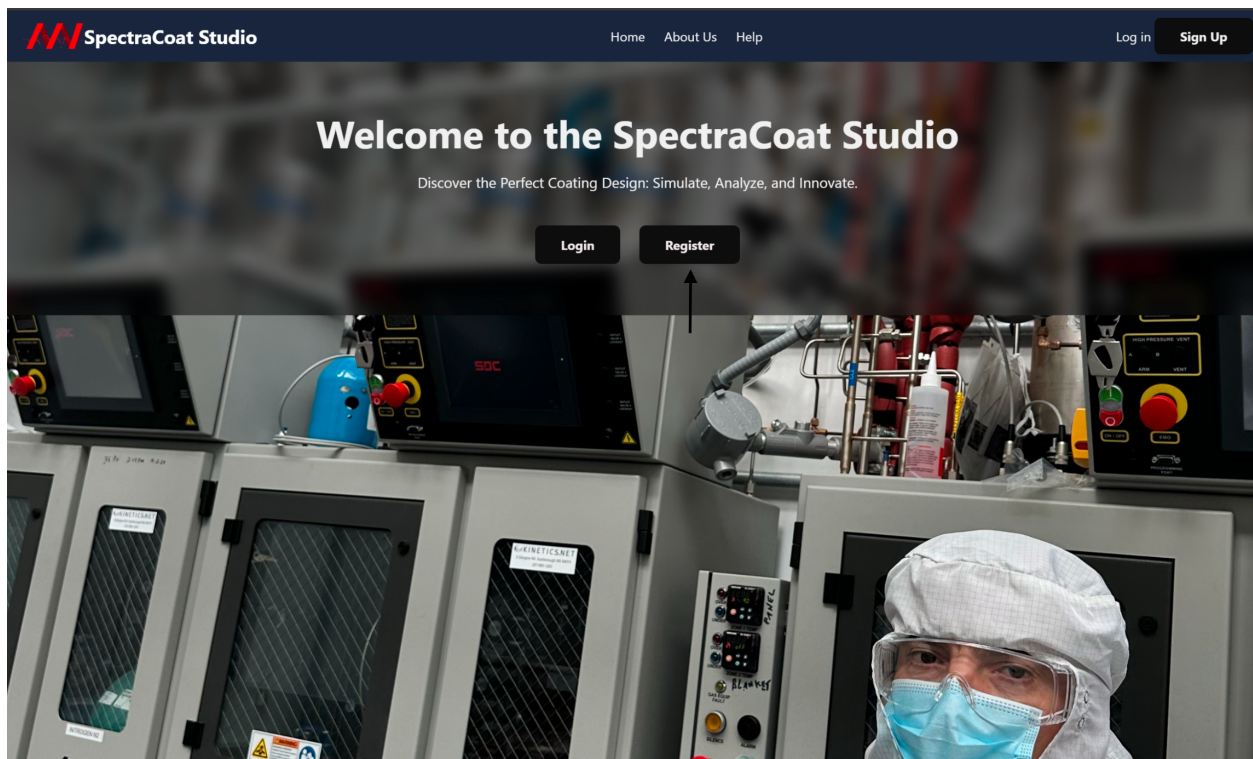
1. Account Creation and Login

Creating an Account

- To get started, create an account if you don't already have one.
- Ensure you use a valid email address as it will be linked to your designs.

Logging In

- Once your account is created, log in to access the studio features.



2. Explore Available Materials

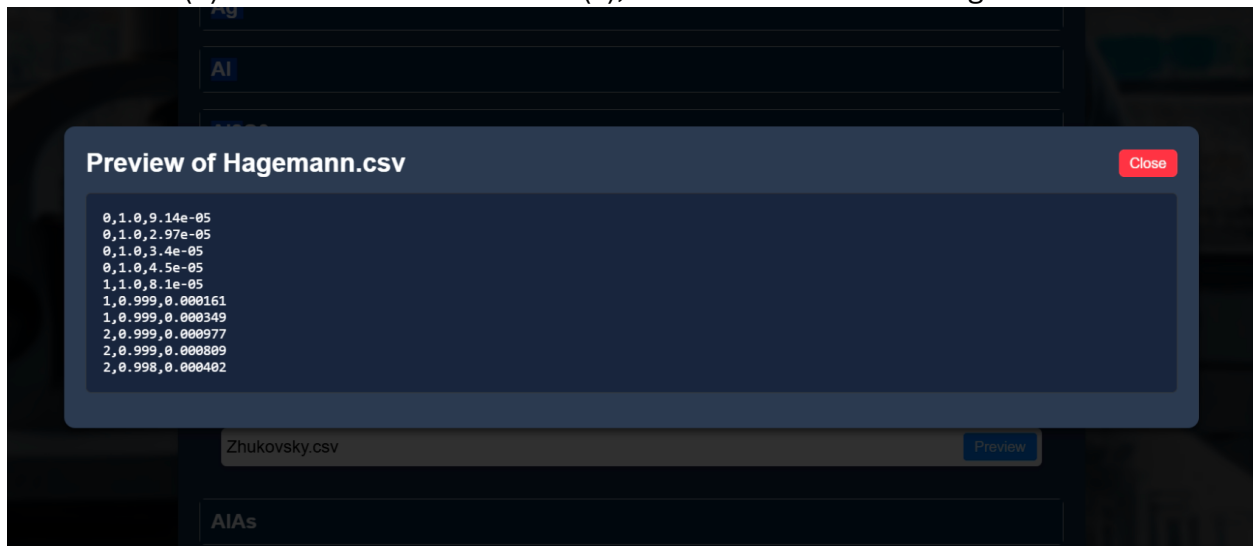
Material List

- After logging in, you'll be taken to the material list page. This page displays all the materials available in our database.



Preview Materials

- Each material has a **Preview** button. Click it to view its properties, such as refractive index (n) and extinction coefficient (k), across different wavelengths.



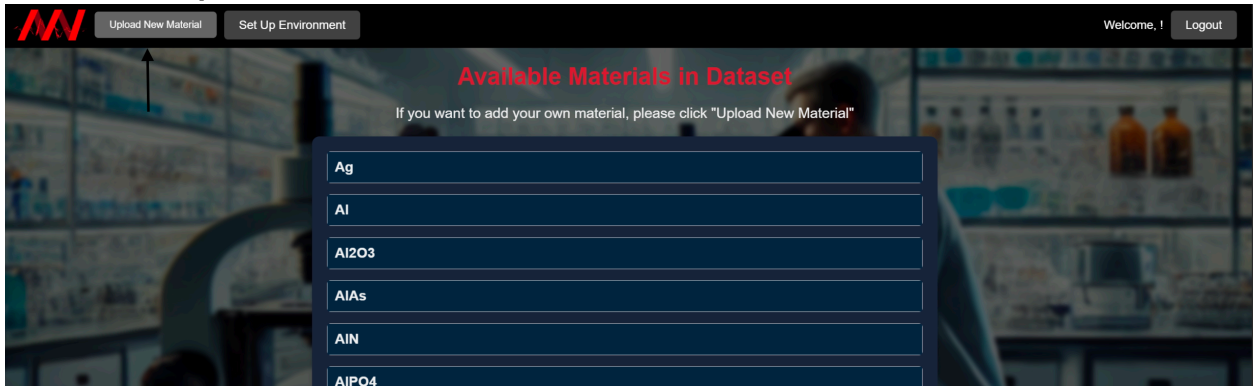
3. Upload a New Material

When to Upload?

- If the material you want to use isn't available in the material list, you can upload your own.

How to Upload

- Click on the **Upload New Material** button.



- Ensure the material file is in CSV format with the following columns:
 1. **Wavelength** (in nm)
 2. **Refractive Index (n)**
 3. **Extinction Coefficient (k)**

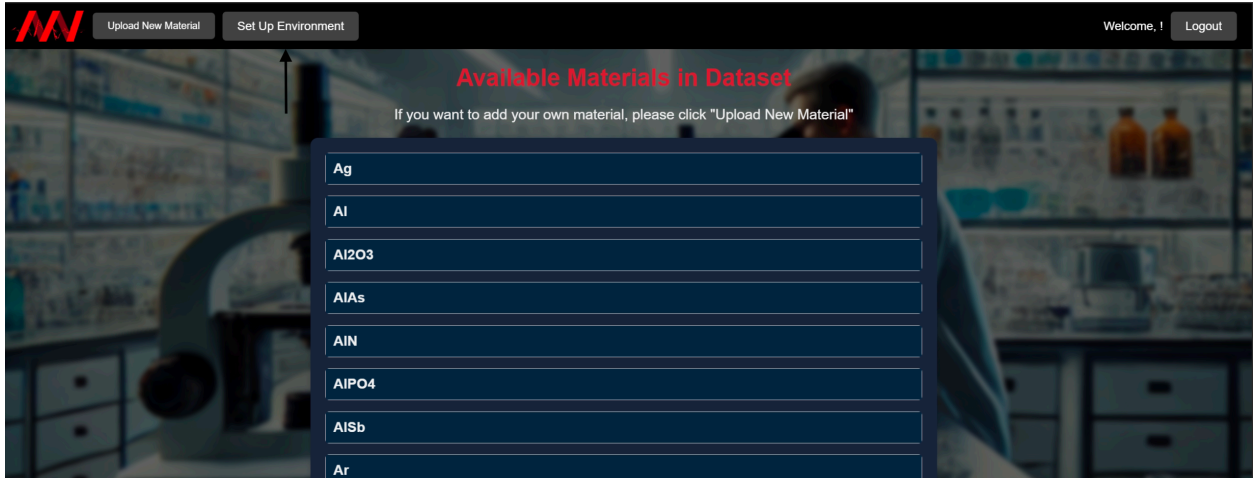
Where Are Uploaded Materials Stored?

- Uploaded materials are saved in the **Uploads Folder**, where you can access them.

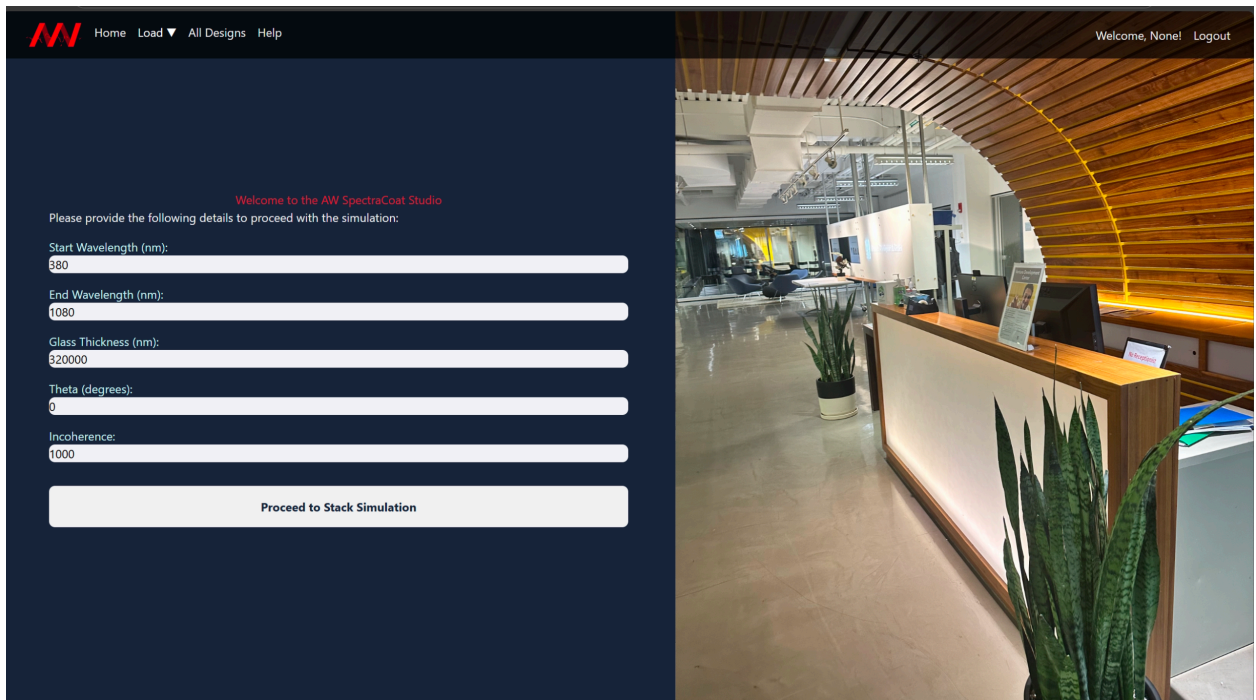


4. Set Up Environment

- Navigate to the **Setup Environment** page to configure simulation variables.



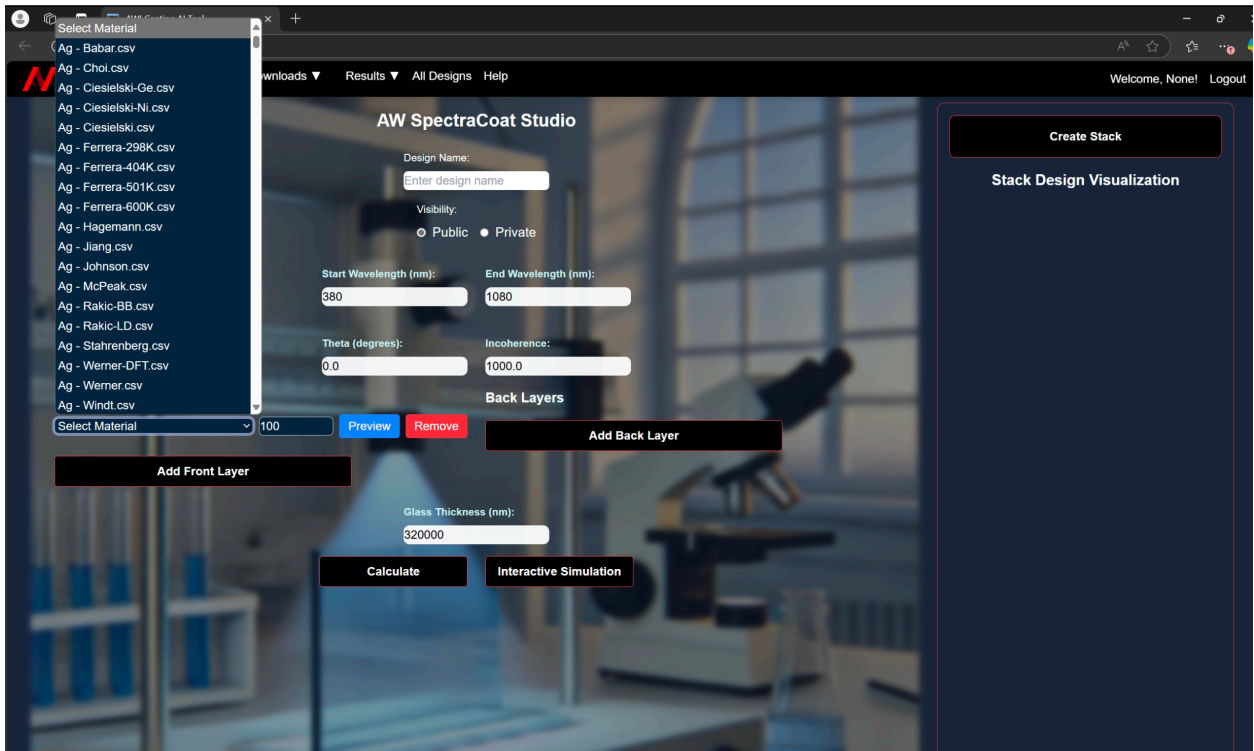
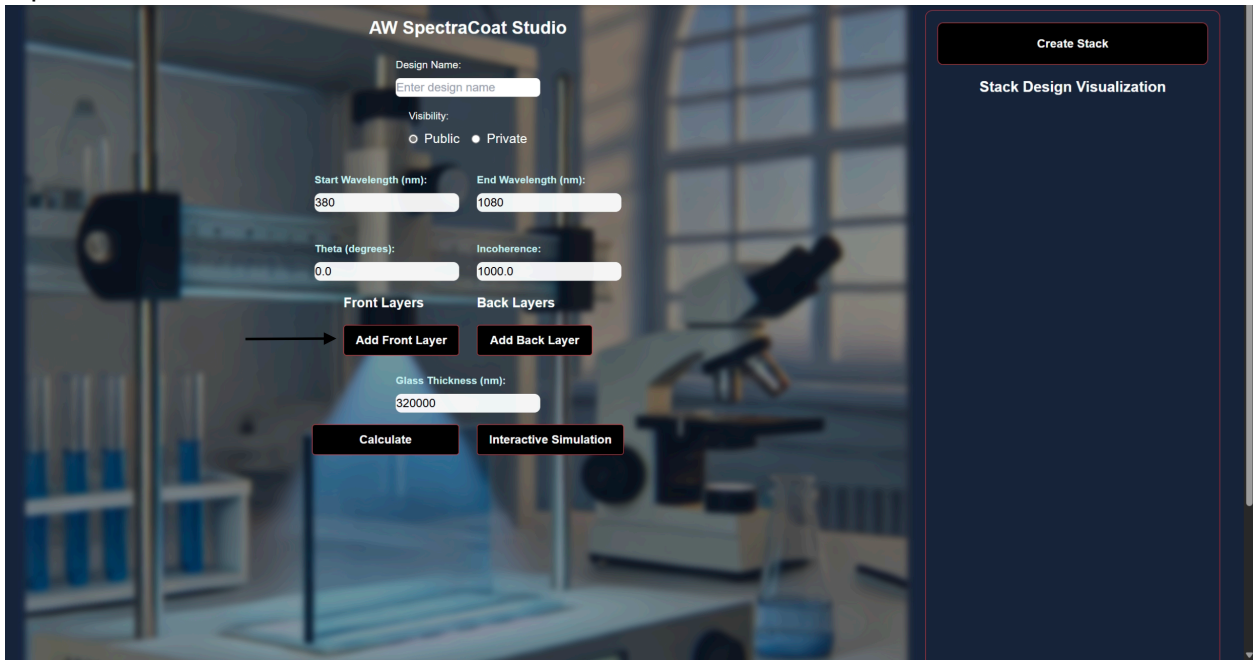
- Here, you can adjust:
 - **Start Wavelength** and **End Wavelength** for your simulation.
 - **Glass Thickness** to customize the substrate.



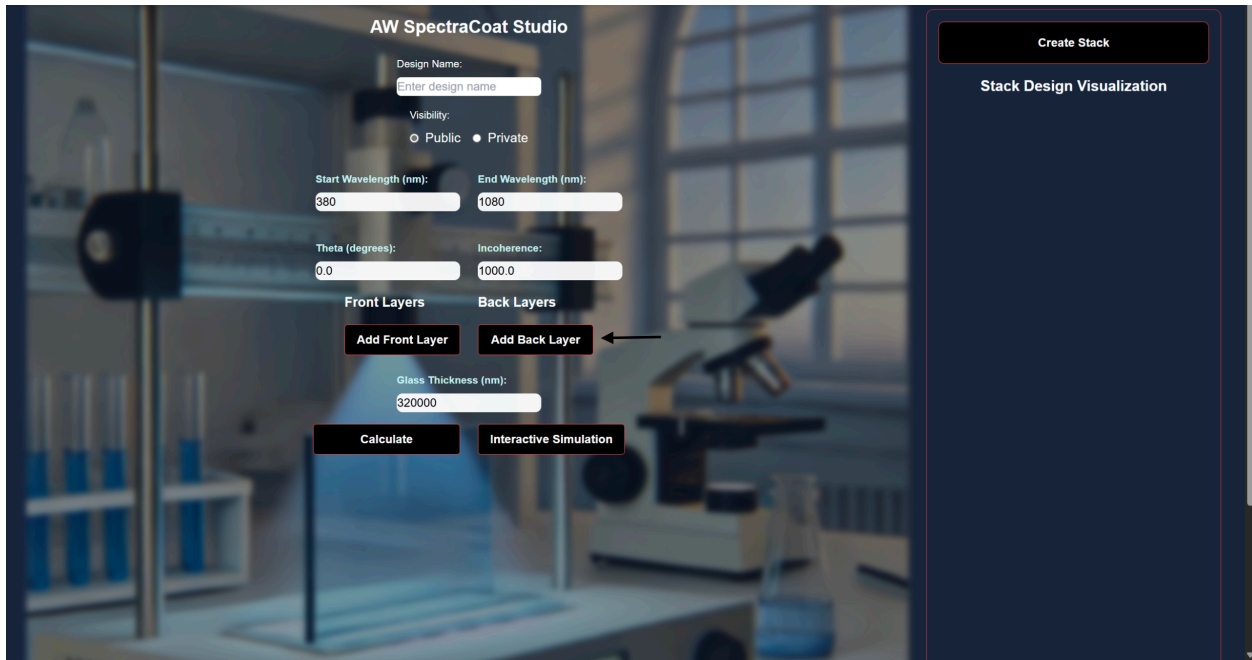
5. Stack Simulation

Adding Front and Back Layers

- **Front Layers:** Click **Add Front Layer** to select a material from the dropdown and input the desired thickness.

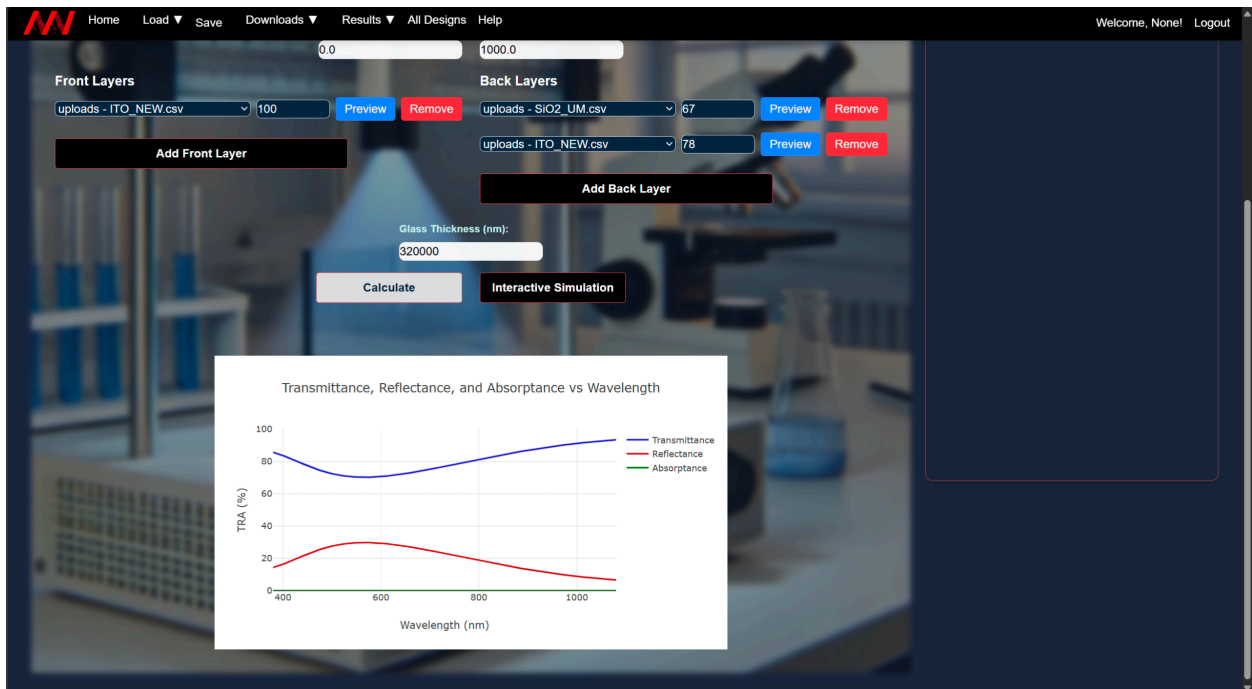


- **Back Layers:** Similarly, click **Add Back Layer** to add materials to the back of your stack.



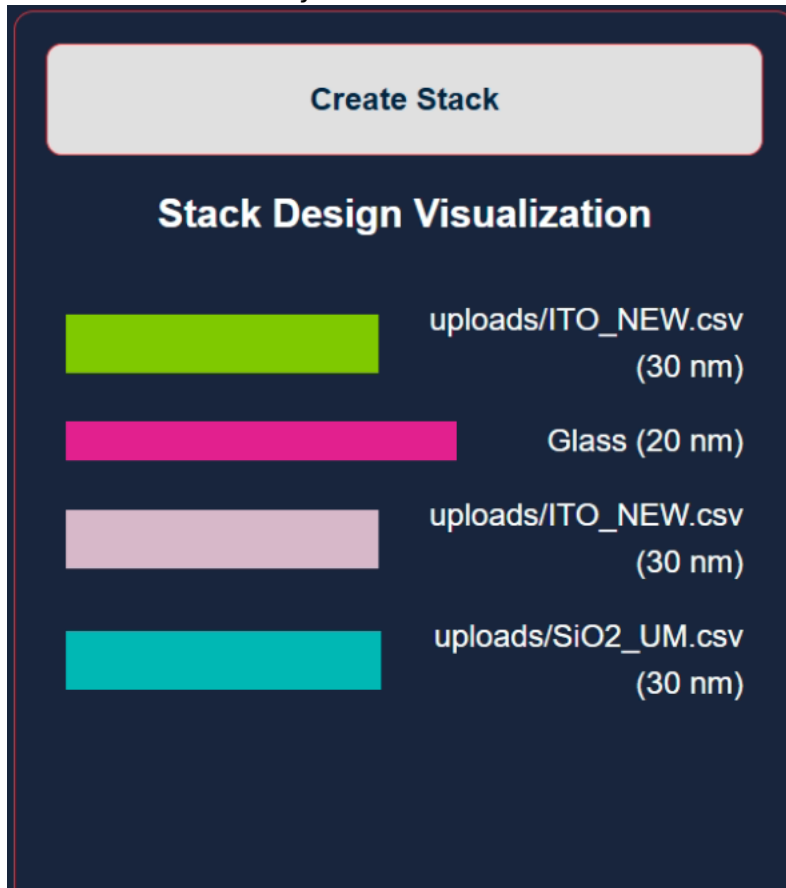
6. Calculate TRA Performance

- Once your stack is defined, click the **Calculate** button to compute and display the **Transmittance (T)**, **Reflectance (R)**, and **Absorptance (A)** (TRA) of your design.



7. Create a Stack Visualization

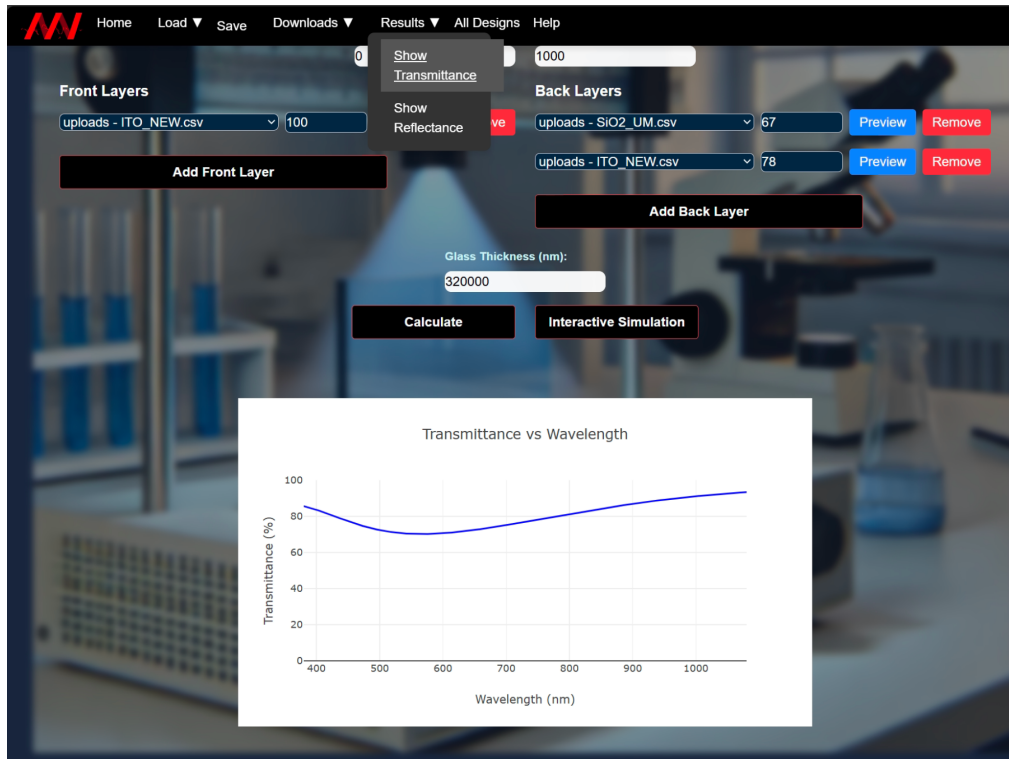
- Click **Create Stack** to visualize your stack design with all layers represented. The visualization will include:
 - Front layers.
 - Glass substrate.
 - Back layers.



8. Analyze Graphical Results

View Individual Graphs

- **Navigate to Results to view:**
 - **Transmittance Graph:** Displays only the transmittance curve.
 - **Reflectance Graph:** Displays only the reflectance curve.

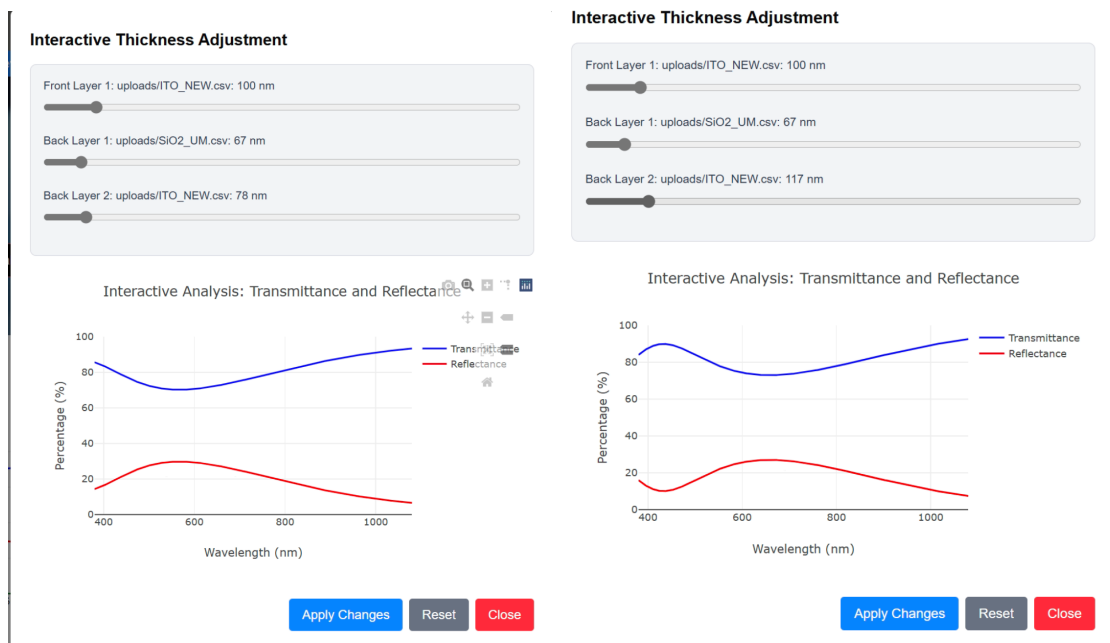


9. Interactive Simulation

Real-Time Thickness Adjustment

- Click Interactive Simulation to open a modal where you can adjust the thicknesses of individual layers.

- Observe real-time changes in the TRA performance as you tweak layer thicknesses.



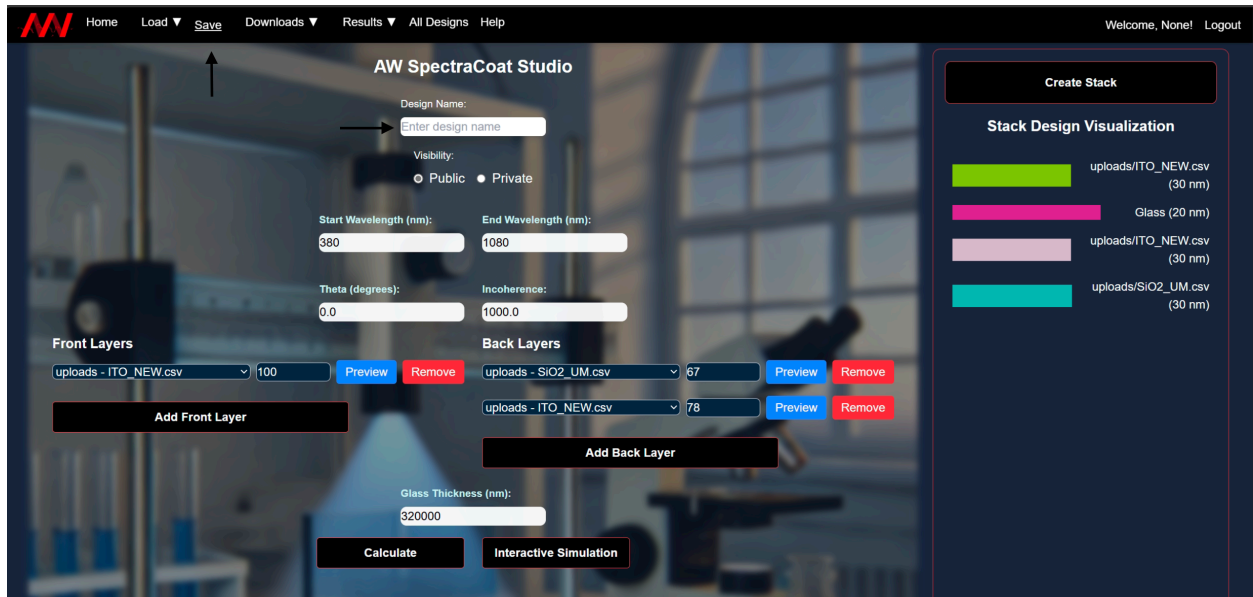
Applying Changes

- If you find an optimized thickness combination during the simulation, click **Apply Changes**. The updated thickness values will reflect in your main design.

10. Save Your Design

How to Save

- Enter a Design Name in the input field.
- Select the visibility of your design:
 - **Public:** Visible to all users.
 - **Private:** Accessible only to you.



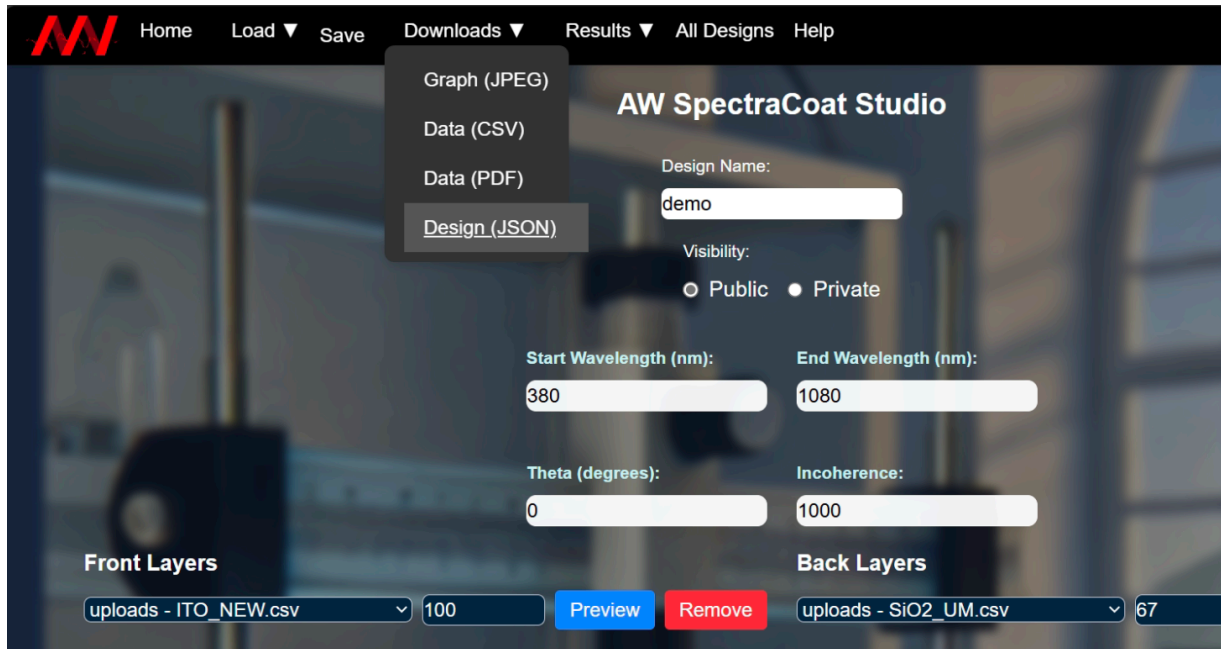
What Can Be Saved?

- Save your stack design, TRA results, and environment settings to the database.

11. Download Design Data

Download Options

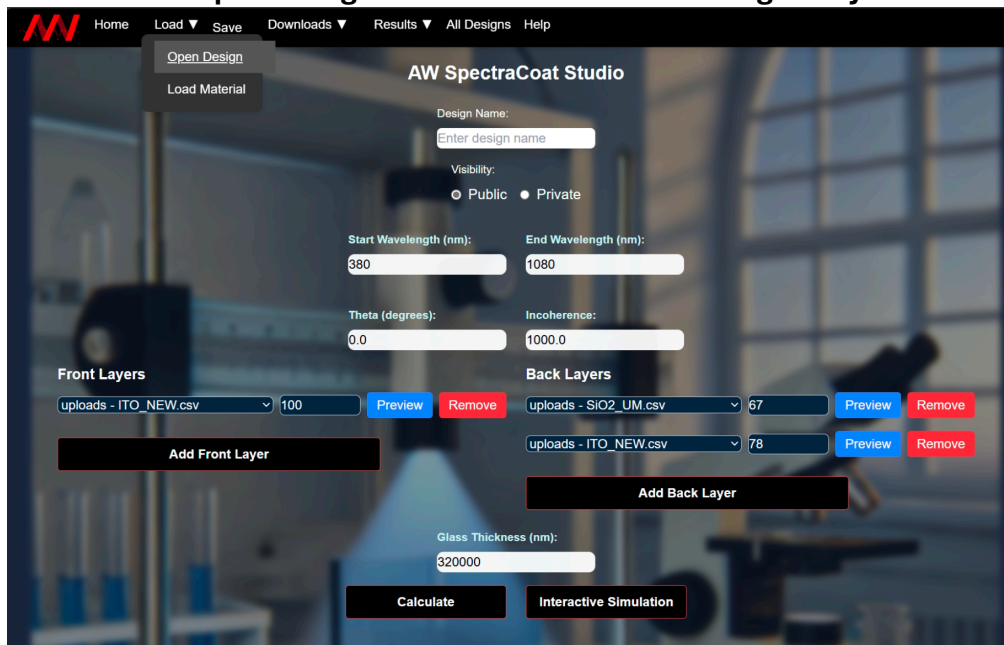
- You can export your design data in various formats:
 - **Graph (JPEG):** Download the TRA graph as an image.
 - **Data (CSV):** Export numerical results for further analysis.
 - **Data (PDF):** Save results in a printable document.
 - **Design (JSON):** Save the entire design configuration.



12. Load a Previously Saved Design

How to Load a Design

- Click Load > Open Design to view a list of saved designs in your database.



- Each design has:
 - A View button to preview details.
 - A Load button to populate the fields in the editor.

Select a Design

sio2_tio2	View	Load
new	View	Load
try	View	Load
new_1	View	Load
try2	View	Load
try3	View	Load
Ag	View	Load
demo	View	Load

Close

Design Details

Name: demo
 Visibility: public
 Front Materials: uploads/ITO_NEW.csv
 Front Thicknesses: 100 nm
 Back Materials: uploads/SiO2_UM.csv, uploads/ITO_NEW.csv
 Back Thicknesses: 67, 78 nm
 Glass Thickness: 320000 nm
 Start Wavelength: 380 nm
 End Wavelength: 1080 nm
 Theta: N/A degrees
 Incoherence: 1000

Close

13. Explore Public Designs

- Go to the All Designs page to view designs shared by other users.

- You can:
 - Preview any public design.



Public Designs

[try](#)

Saved by: bthapa@adaptivewaves.com

[new_1](#)

Saved by: bthapa@adaptivewaves.com

[try3](#)

Saved by: bthapa@adaptivewaves.com

[Ag](#)

Saved by: bthapa@adaptivewaves.com

[test_design](#)

Saved by: test@test.com

[demo](#)

Saved by: bthapa@adaptivewaves.com

- **Apply a public design to your project.**

demo

Close

Saved by: bthapa@adaptivewaves.com

Front Materials: uploads/ITO_NEW.csv

Front Thicknesses: 100 nm

Back Materials: uploads/SiO2_UM.csv, uploads/ITO_NEW.csv

Back Thicknesses: 67, 78 nm

Glass Thickness: 320000 nm

Wavelength Range: 380 nm - 1080 nm

Theta: 0

Incoherence: 1000

Apply Design

Notes and Tips

- 1. Always enter a Design Name to save your work.**
- 2. When uploading materials, double-check the CSV format and column headers.**
- 3. Public designs are visible to all users, so ensure you select the right visibility before saving.**