

## 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.

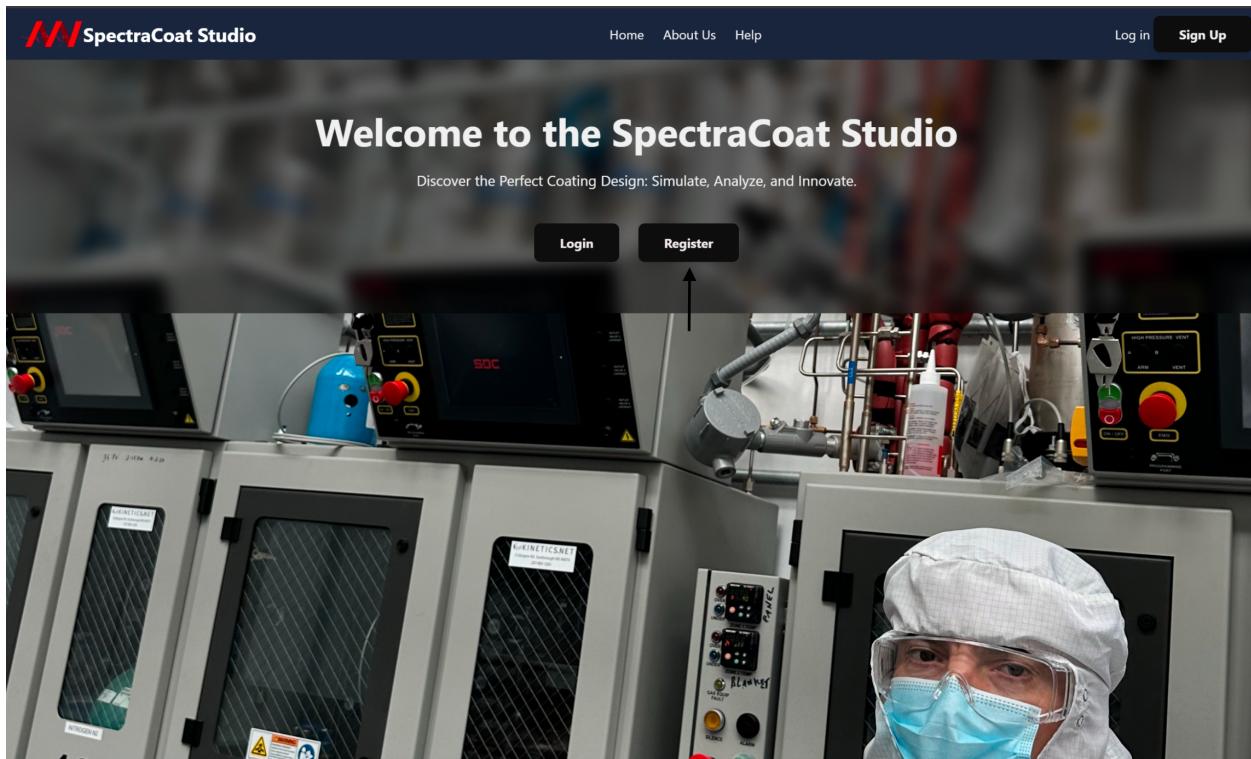
### **1. Account Creation and Login**

#### **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**

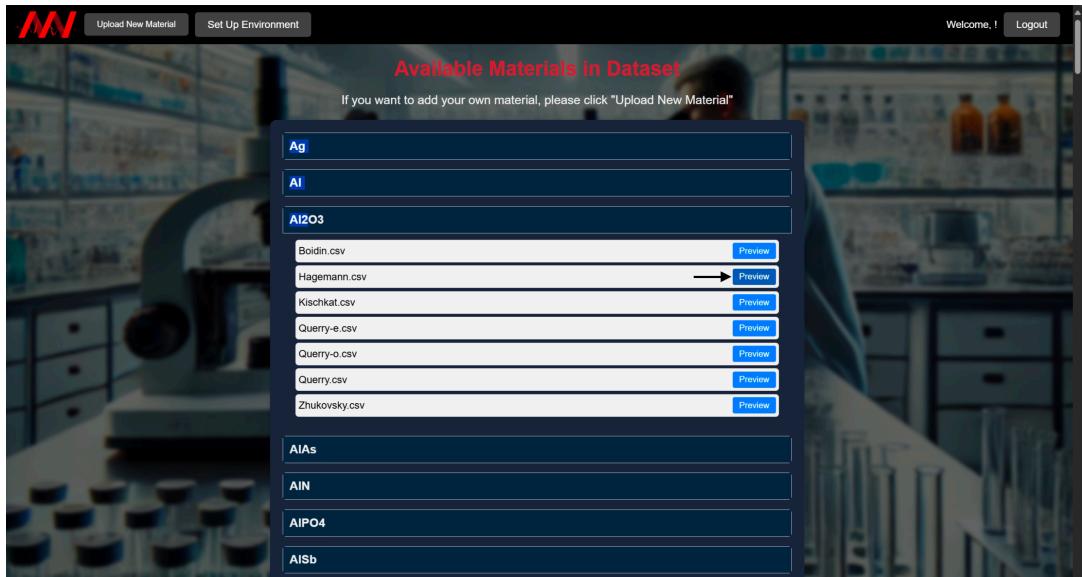
- Once your account is created, log in to access the studio features.



### **2. Explore Available Materials**

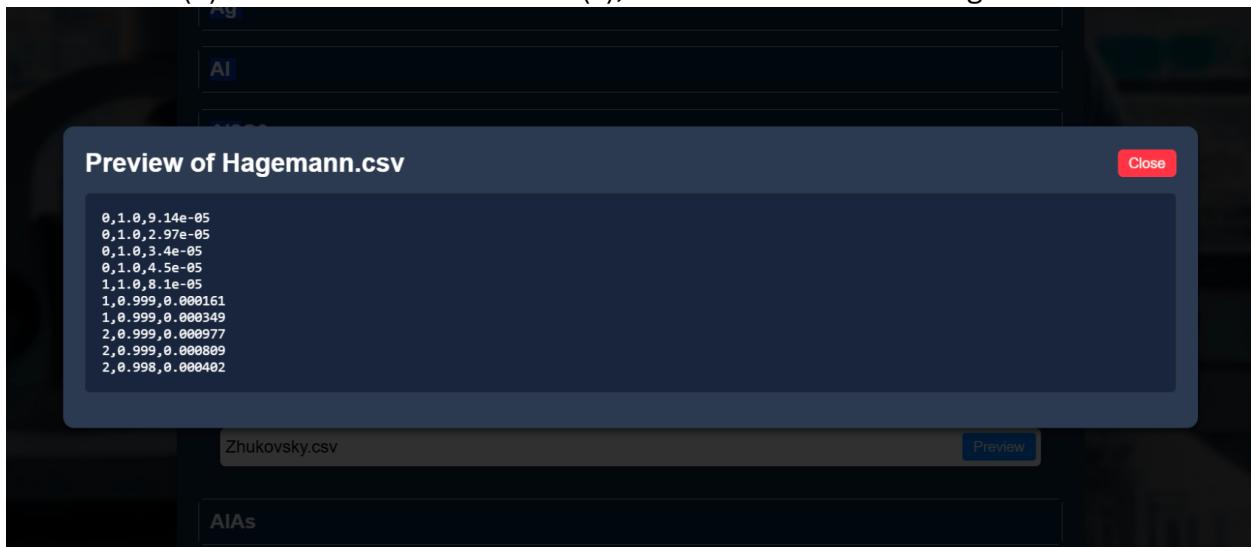
#### **Material List**

- 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.



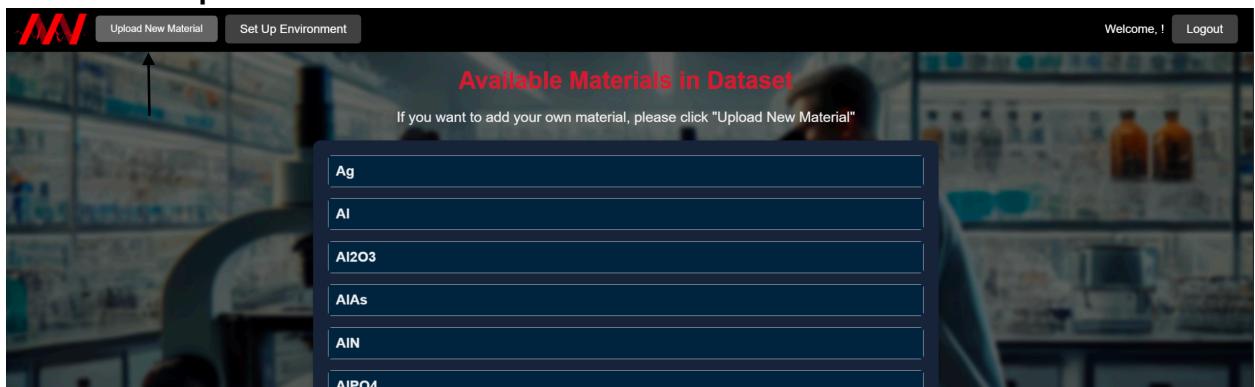
## 3. Upload a New Material

### 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

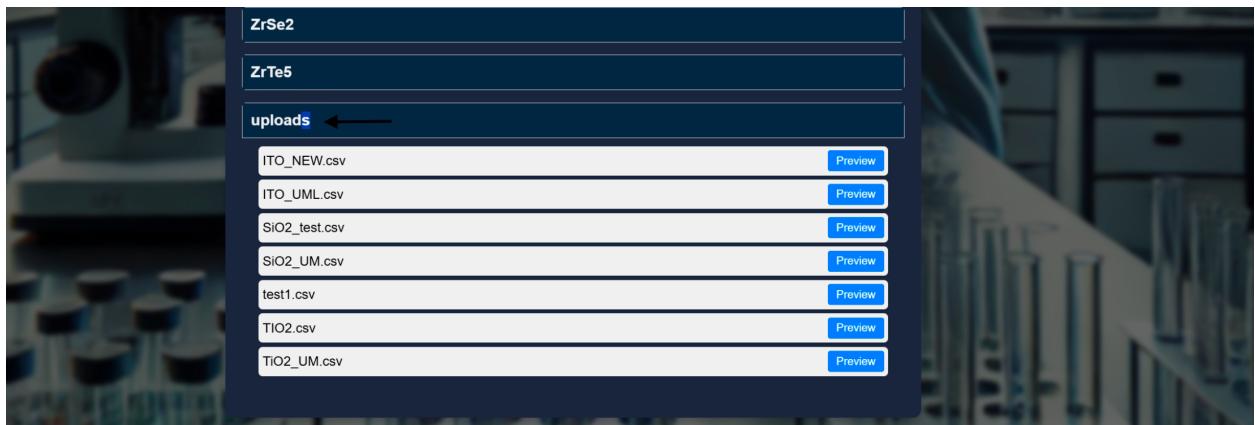
- Click on the **Upload New Material** button.



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

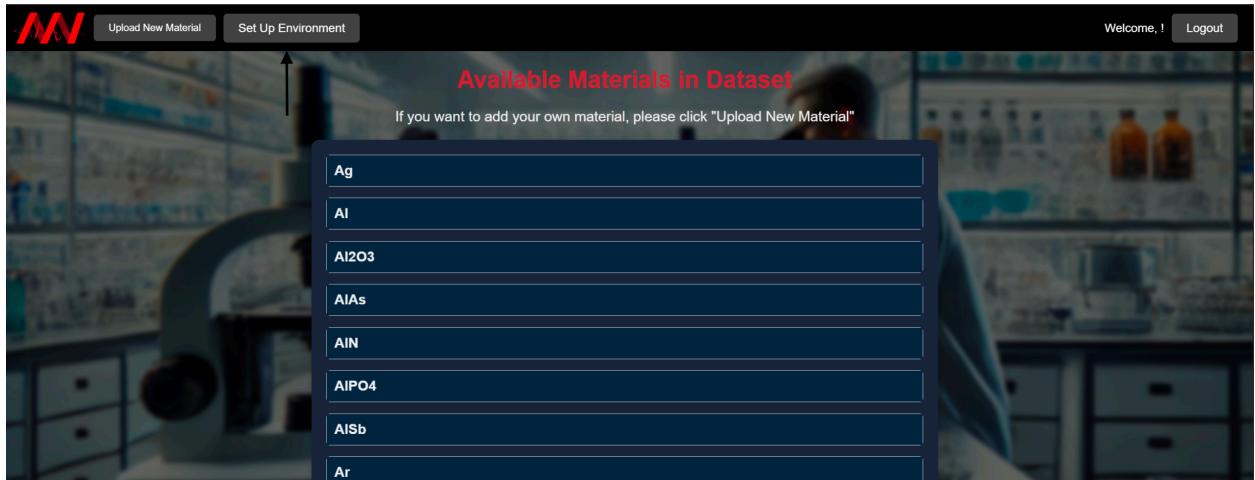
### Where Are Uploaded Materials Stored?

- 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.



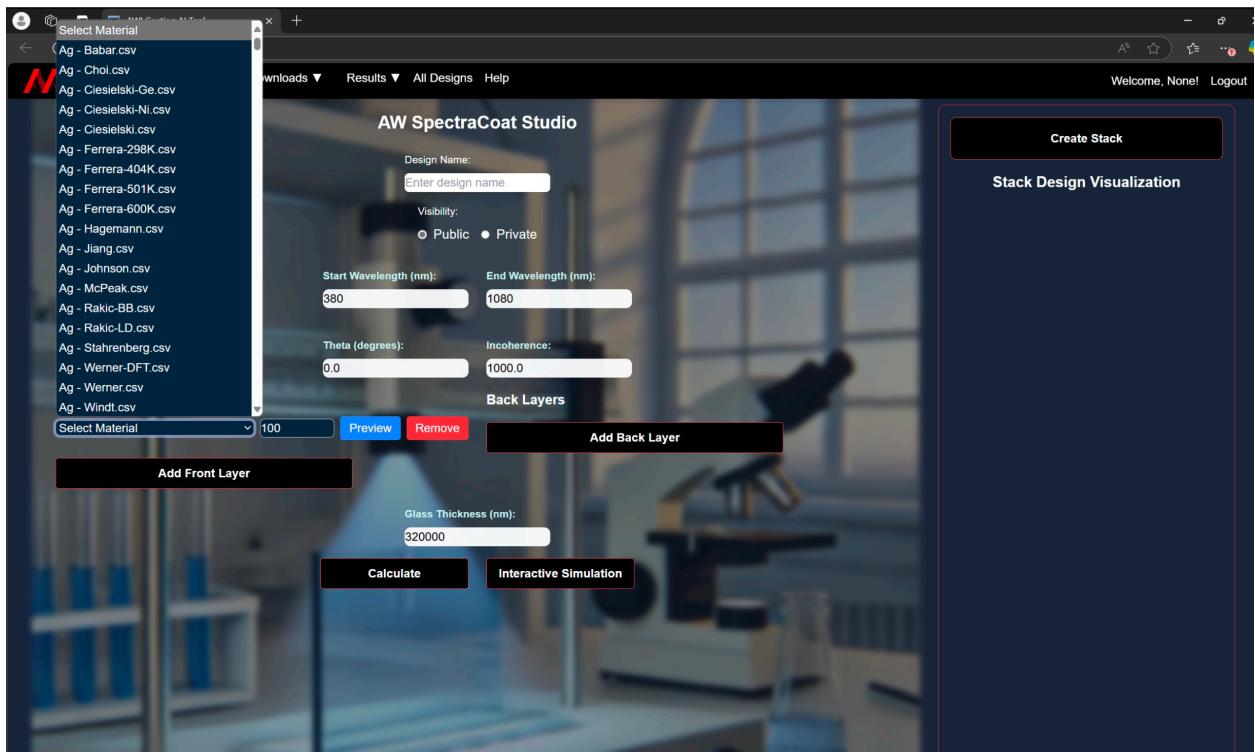
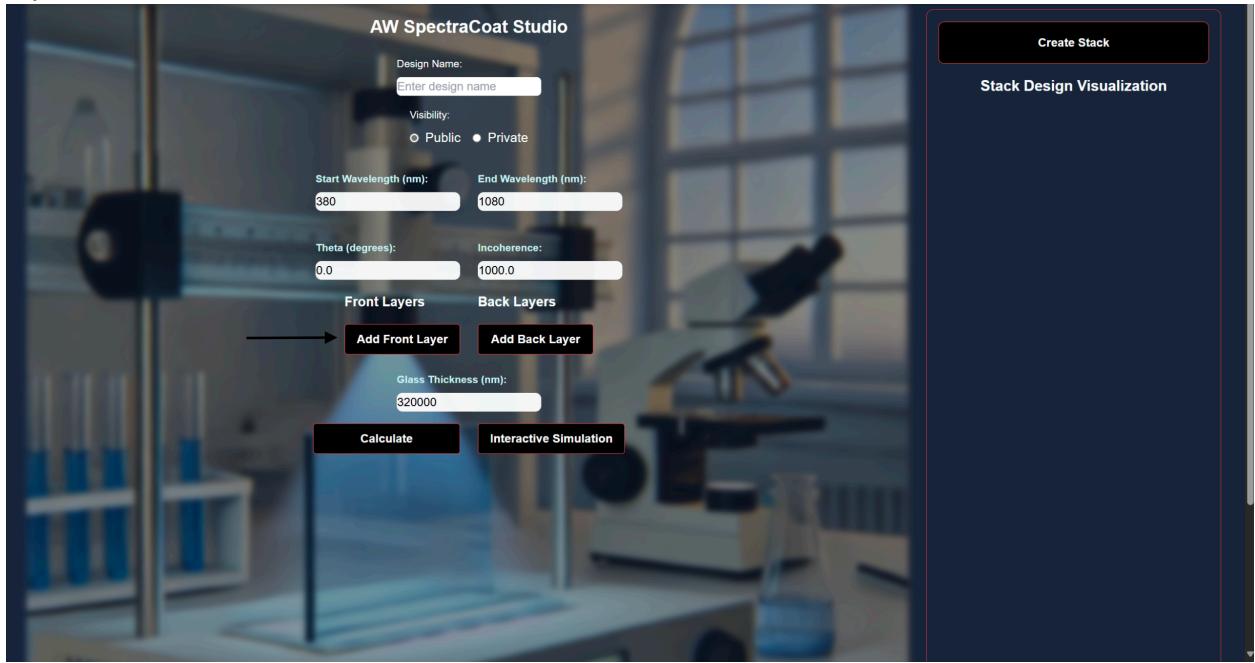
- Here, you can adjust:
  - **Start Wavelength** and **End Wavelength** for your simulation.
  - **Glass Thickness** to customize the substrate.

The image shows two side-by-side screenshots. The left screenshot is a dark-themed web interface for "AW SpectraCoat Studio". It displays a "Welcome to the AW SpectraCoat Studio" message and a form for inputting simulation parameters: Start Wavelength (nm) set to 580, End Wavelength (nm) set to 1080, Glass Thickness (nm) set to 520000, Theta (degrees) set to 0, and Incoherence set to 1000. A "Proceed to Stack Simulation" button is at the bottom. The right screenshot is a photograph of a modern office lobby with a curved wooden reception desk, potted plants, and a large arched wooden structure in the background.

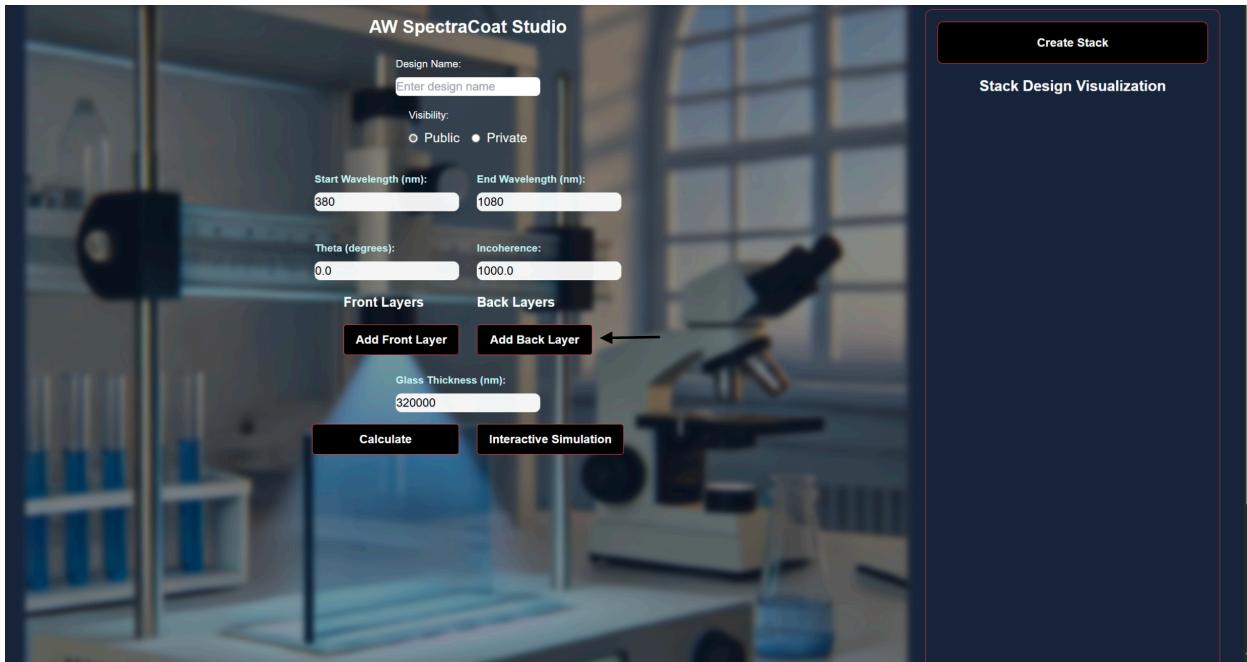
## 5. Stack Simulation

### Adding Front and Back Layers

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

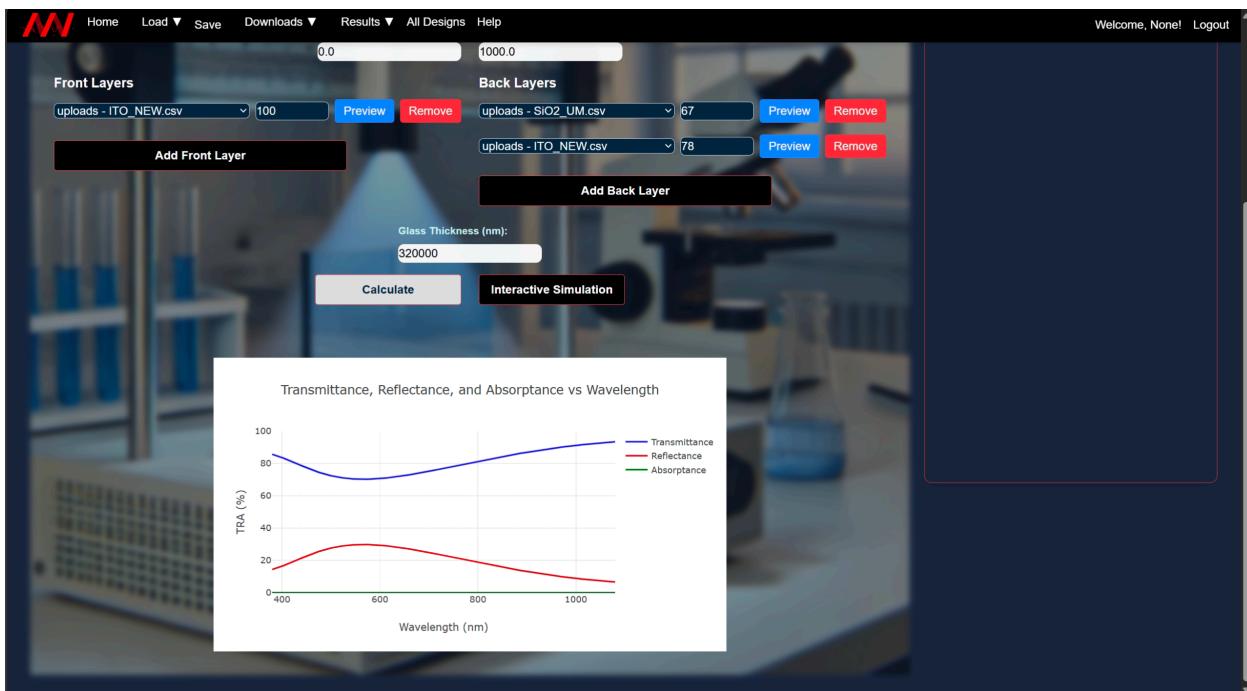


- **Back Layers:** Similarly, click **Add Back Layer** to add materials to the back of your stack.



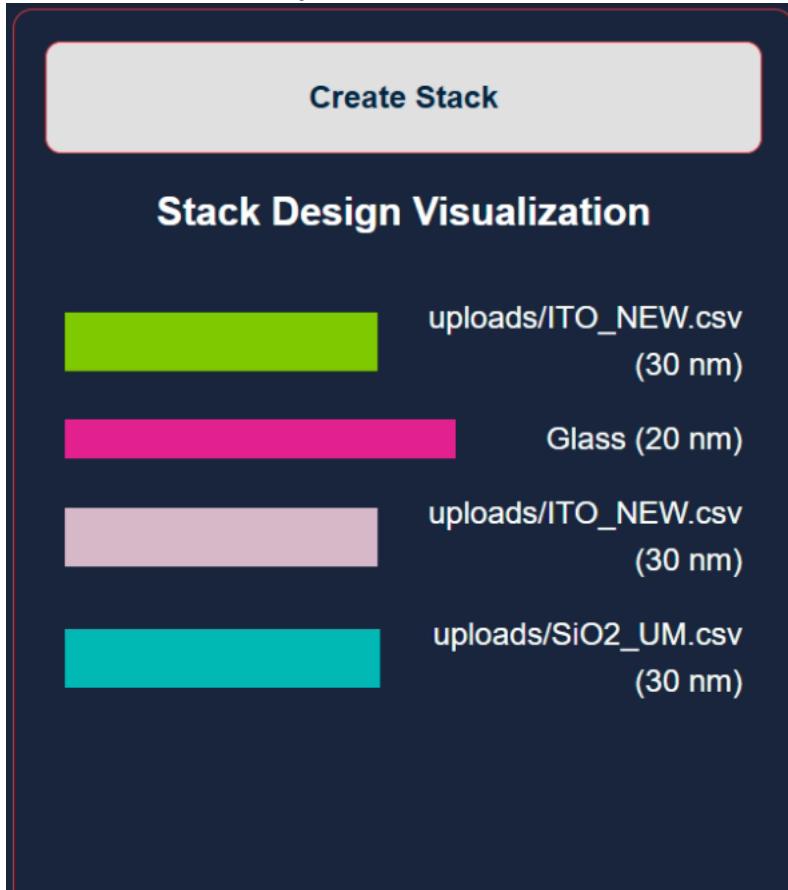
## 6. Calculate TRA Performance

- 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

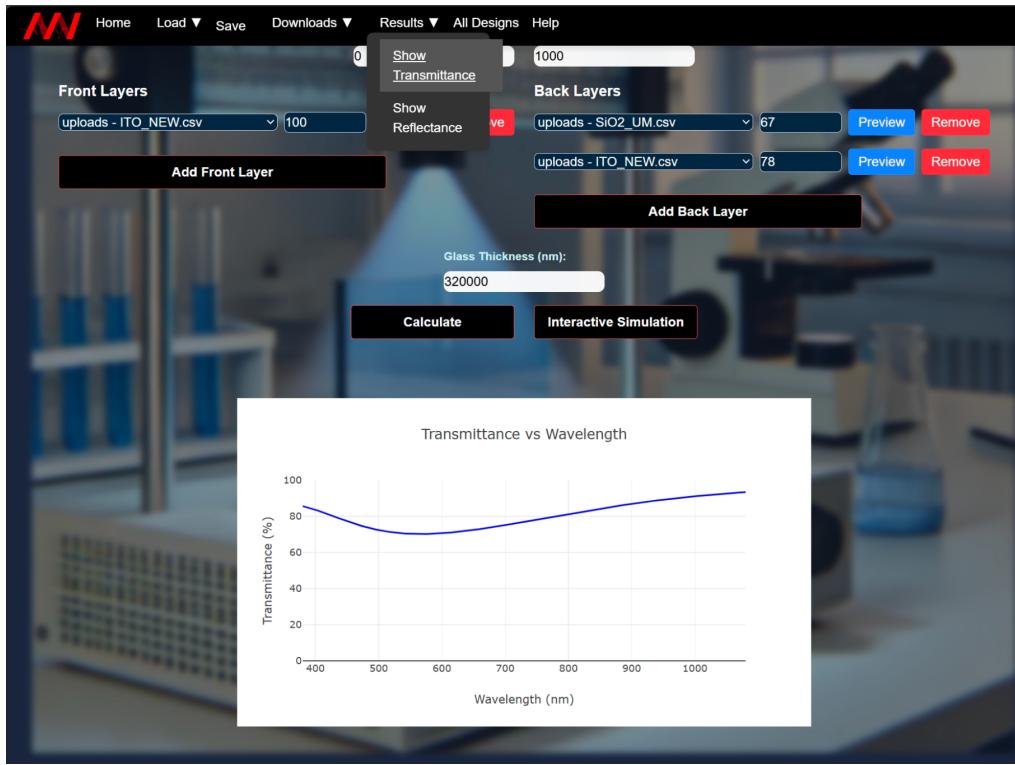
- Click **Create Stack** to visualize your stack design with all layers represented. The visualization will include:
  - Front layers.
  - Glass substrate.
  - Back layers.



## 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.

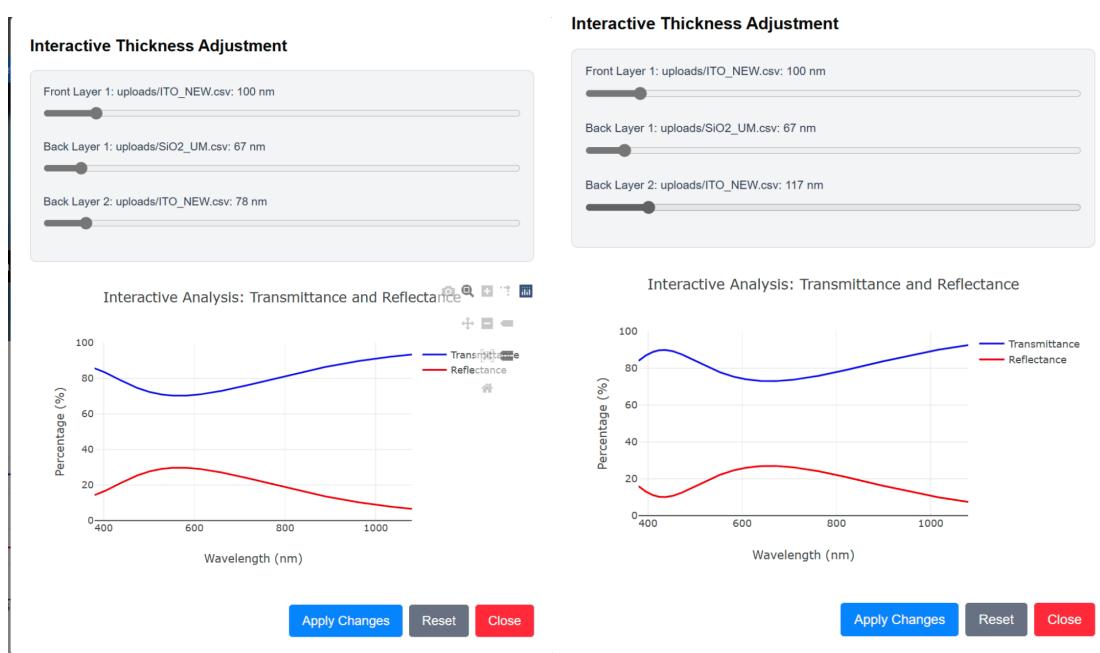


## 9. Interactive Simulation

### 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.**



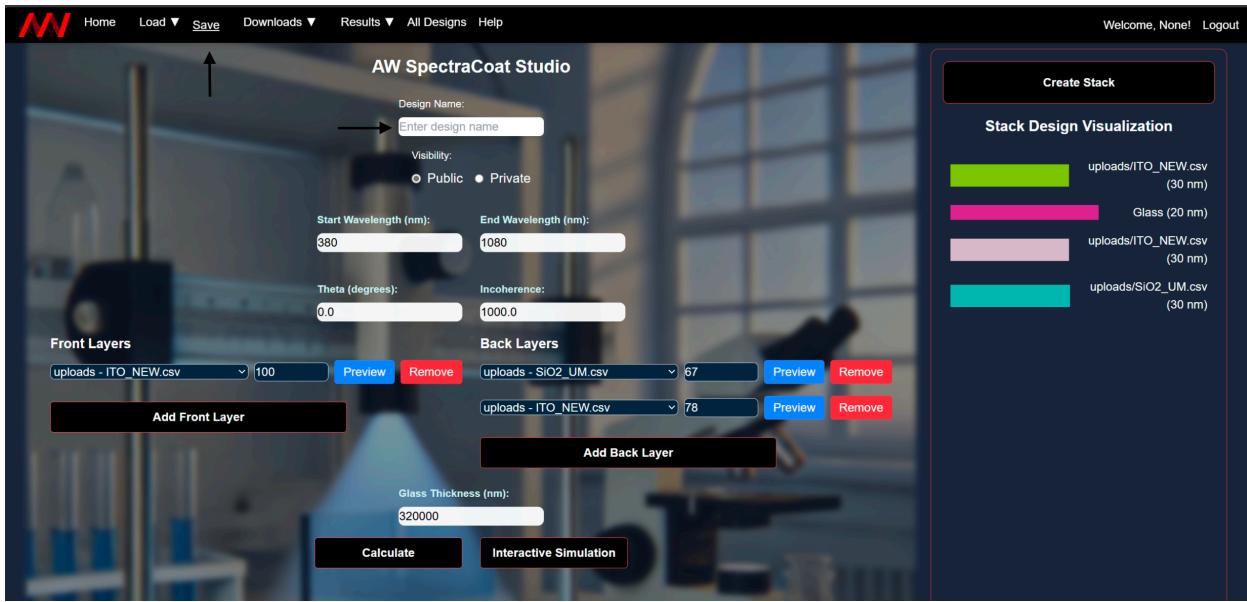
### Applying Changes

- 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.



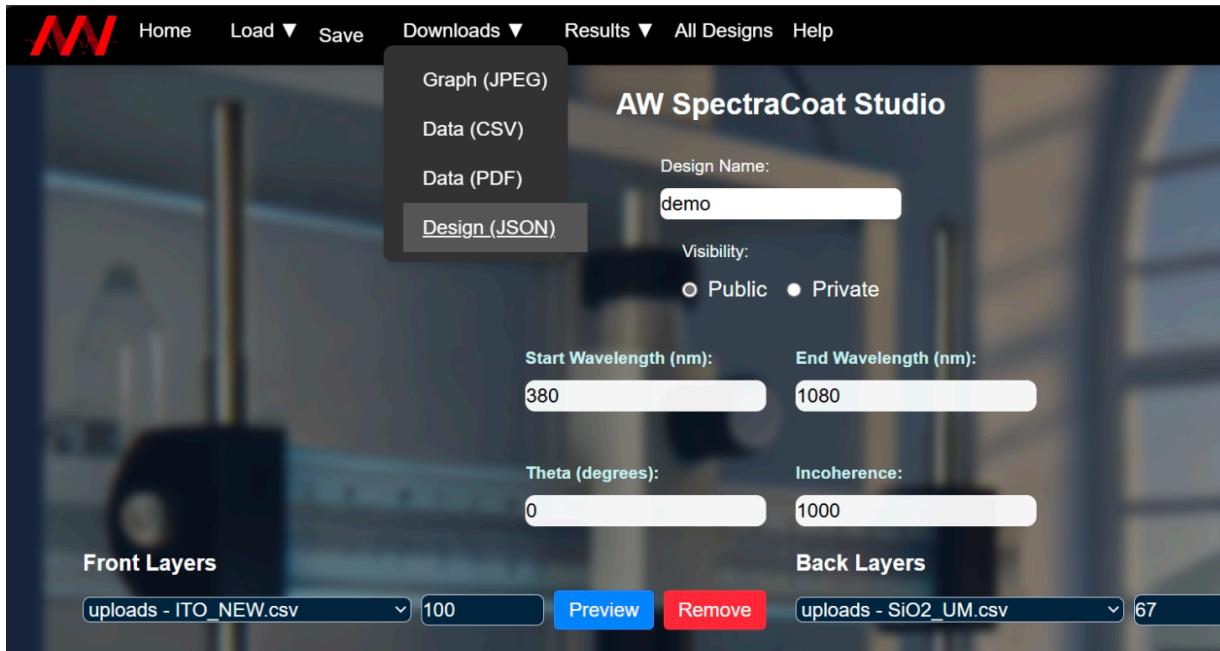
### What Can Be Saved?

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

## 11. Download Design Data

### Download Options

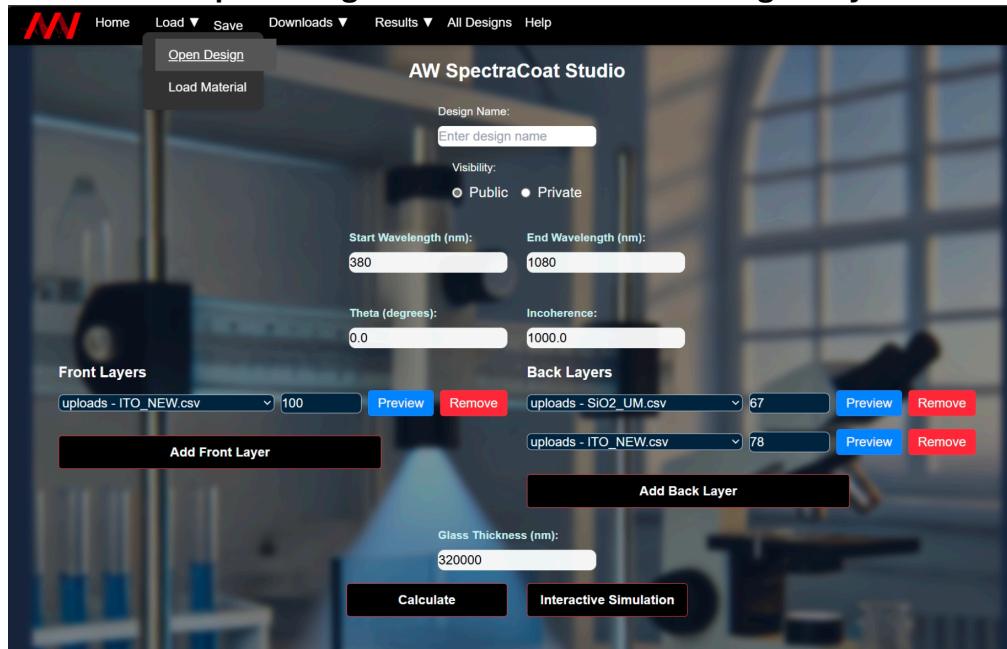
- You can export your design data in various formats:
  - Graph (JPEG): Download the TRA graph as an image.
  - Data (CSV): Export numerical results for further analysis.
  - Data (PDF): Save results in a printable document.
  - Design (JSON): Save the entire design configuration.



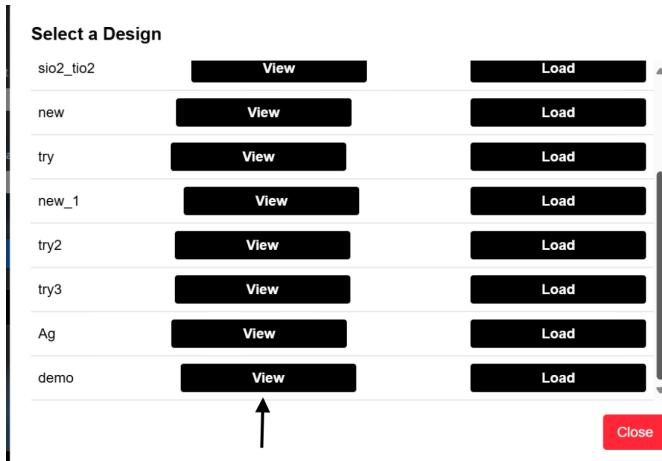
## 12. Load a Previously Saved Design

### 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.



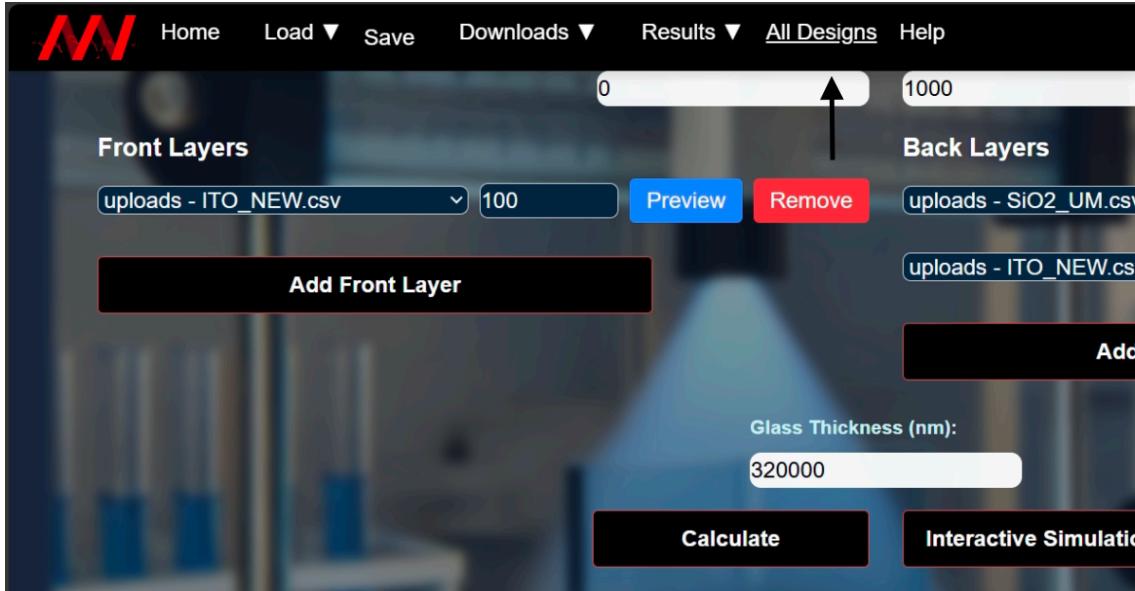
#### Design Details

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.**