Using the Cary UV-Vis Spectrometer
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Office: PS455

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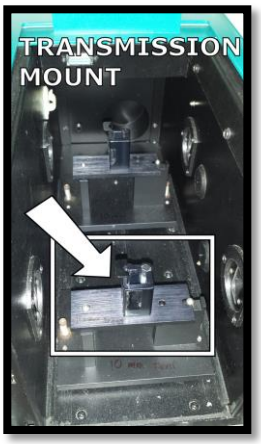
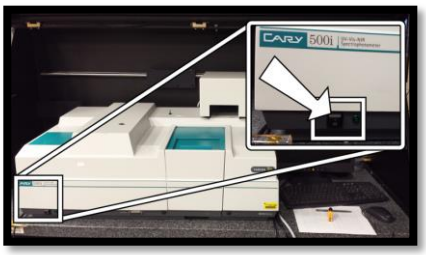
| 1. There are two mounts used in the Cary UV-Vis Spectrometer: one for measuring reflectance, which has an assortment of mirrors and is large, and one for measuring transmission, which has no mirrors and is smaller. Make sure that the correct mount is in place. Do not interchange mounts without the assistance of the the superuser. You have to be approved by the super user to do so. |  <br>  |
| 2. Turn on the Cary and the computer. |  <br>  |
| 3. Open Windows 2000—password: Cary500i | |
| 4. Open the folder: CaryWinUV | |

**Transmission measurements:**

For the transmission measurements the variable angle specular reflectivity accessory (VARSA)have to be taken out from the sample chamber. User has to be trained and approved by the super-user to uninstall the VARSA.

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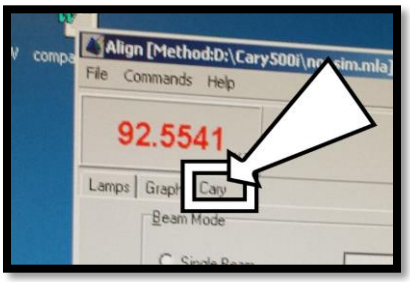
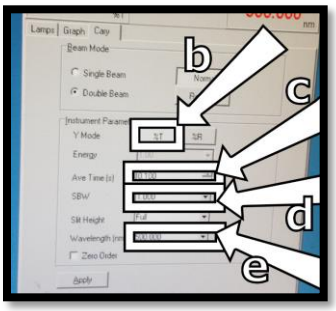
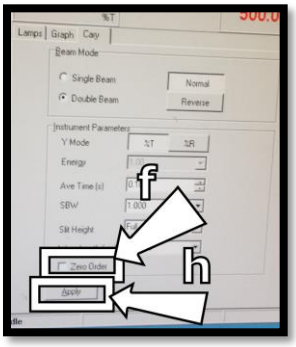
| 1. Open the folder: CaryWinUV | |
| 2. Program name: Align<br>a. Select Cary<br>b. Select %T<br>c. Set average time to 0.2 s<br>d. Set SBW to 2<br>e. Set the wavelength to a visible wavelength (~500nm)<br>f. Check zero (There is a checkbox called “Check zero”)<br>g. Hit apply, open the chamber in the Cary, and check the alignment<br>h. The beam spot can be seen by placing a piece of paper at the sample holder |  <br>  <br>  <br>  |

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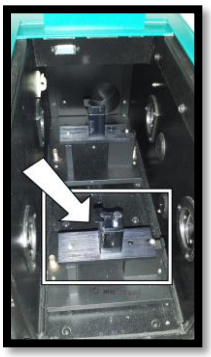
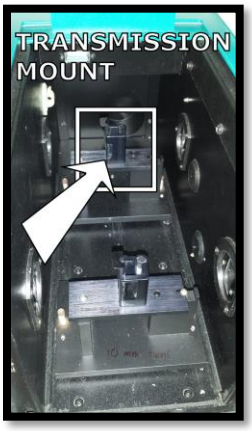
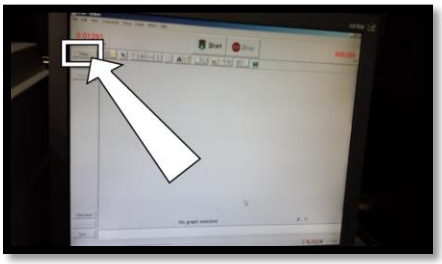
| 3. Place the sample on the front sample holder; make sure that the beam is hitting the sample. Double sided tape can be used to stick the sample to the sample holder. |  |
| 4. The sample holder at the back is for the reference. |  |
| 5. Close the program “Align” | |
| 6. Open Program: Scan<br>a. Select Set-up<br>b. Select Cary tab<br>c. Set wavelength range from 2000 nm to 200 nm<br>d. Mode- %T<br>e. Close Set-up |  <br>  |

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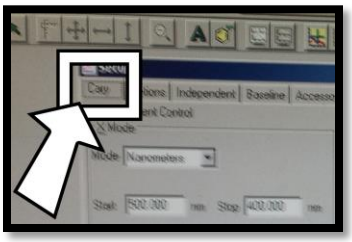
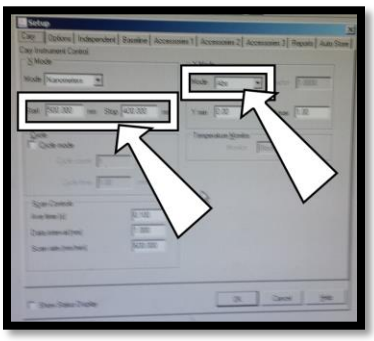
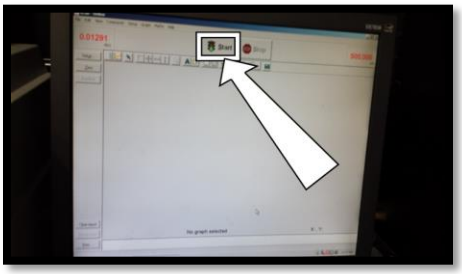
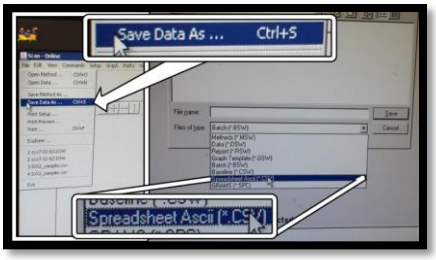
| |  <br>  |
| 7. When ready hit start. |  |
| 8. Save the data as csv file format. |  |
| 9. When done close the program | |

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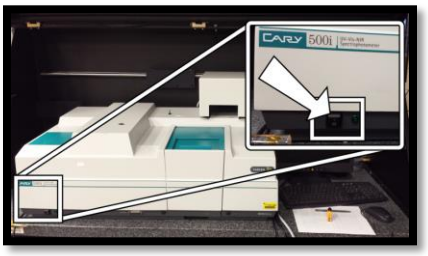
| 10. Switch off cary spectrometer |  <br>  |

**Reflectivity Measurements:**

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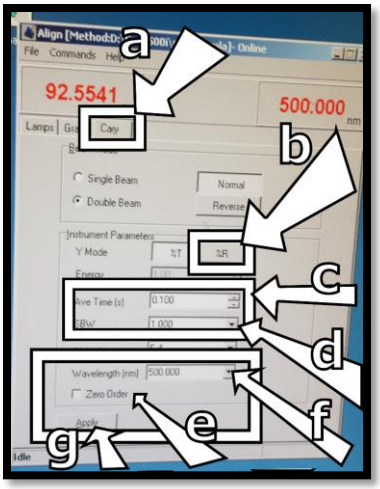
| 1. Program name: Align<br>a. Select Cary<br>b. Select %R<br>c. Set average time to 0.2 s<br>d. Set SBW to 2<br>e. Check zero (There is a checkbox called “Check zero”)<br>f. Set the wavelength to a visible wavelength (~500nm)<br>g. Hit apply, open the chamber in the Cary, and check the alignment |  <br>  |

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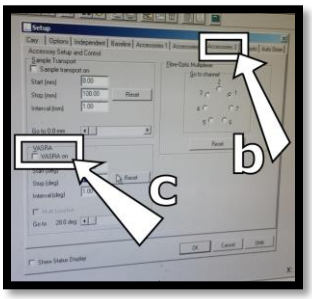
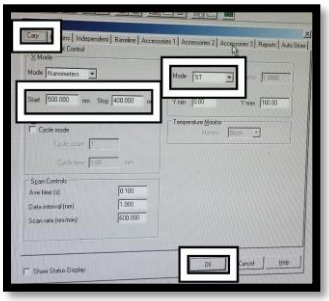
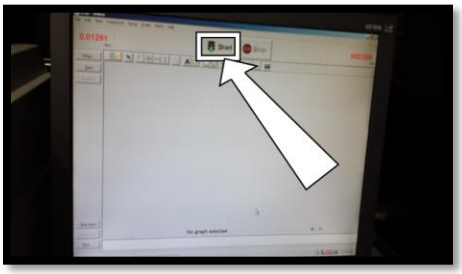
| 2. Program name: Scan<br>a. Select Set-up<br>b. Accessory 3<br>c. Varsa On<br>d. Set angle: for a fixed angle, set it from 20˚ to 20˚. For a variable angle, input the specific range<br>e. Select Cary tab<br>f. Set wavelength range from 2000 nm to 200 nm<br>g. Mode- Abs. %R<br>h. Close Set-up |  <br>  <br>  <br>  |
| 3. Hit Start |  |
| 4. Create Filename | |

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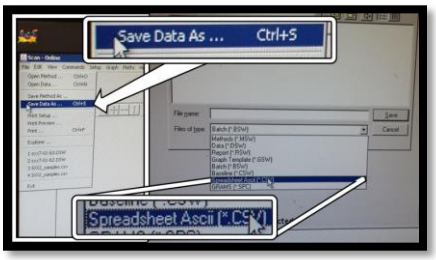
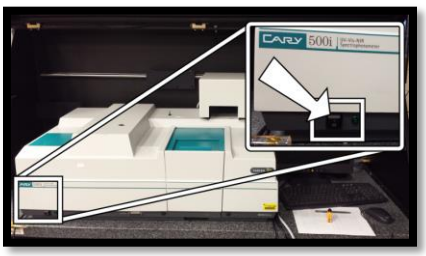
| 5. When finished with the scan, save the data as a CSV file |  |
| 6. When finished with the Cary, close the program, shut down the computer, turn off the spectrometer |  <br>  |