

Uncertainty Outputs

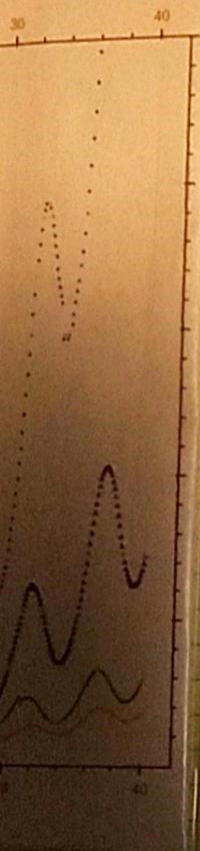
```

print(uLambda_433)
print(uLambda_447)
print(uLambda_462)
print(uLambda_476)

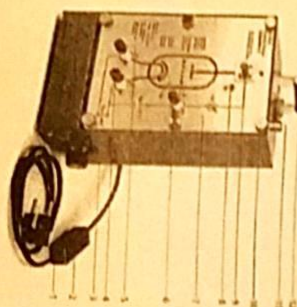
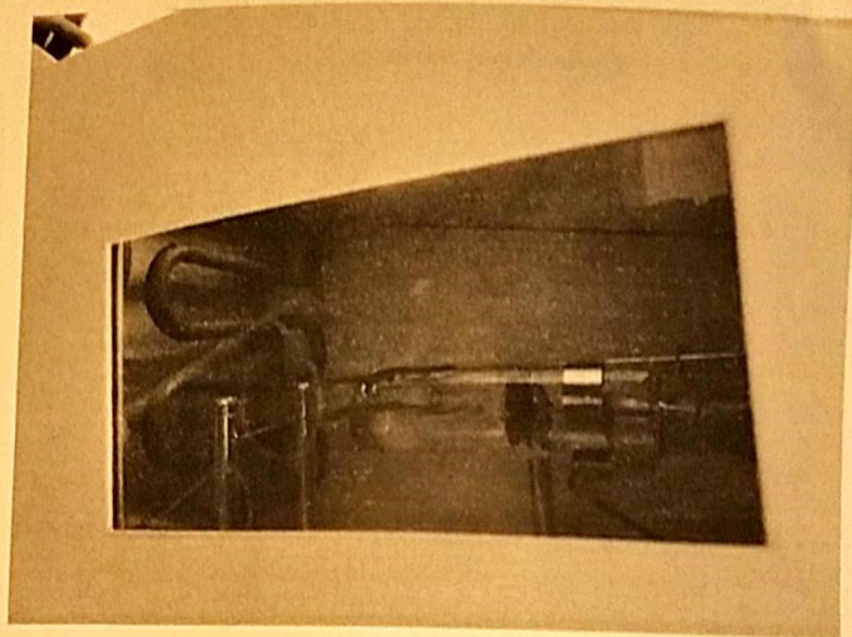
print(us_433)
print(us_447)
print(us_462)
print(us_476)

9.243619785568323e-05
8.899517478864459e-05
8.95927170379016e-05
9.116235523403401e-05
5.690099157599109e-19
2.265722409987931e-16
8.616503130253884e-18
1.5772709195584198e-18

```

```
print(ulambda_433)
print(ulambda_447)
print(ulambda_462)
print(ulambda_476)
```



1. Heating filament
2. Battery lead with switch
3. Battery lead (thermistor)
4. Cathode filament lead
5. Ticker circuit
6. Anode circuit
7. Anode lead with frequency
8. Anode circuit lead
9. Cathode lead
10. Anode lead to output
11. Anode lead to output
12. Anode lead to output


```
DEa_433=Df433[0]/2+Df433[1]
DEa_447=Df447[0]/2+Df447[1]
DEa_462=Df462[0]/2+Df462[1]
DEa_476=Df476[0]/2+Df476[1]
```

E_a
[eV]

```
print(DEa_433)
print(DEa_447)
print(DEa_462)
print(DEa_476)
```

```
4.851666666666667
5.0329999999999995
4.9919999999999998
4.9124999999999997
```

#answers in m

```
lambda_433 = (.008/(2*DEa_433))*Df433[0]
lambda_447 = (.008/(2*DEa_447))*Df447[0]
lambda_462 = (.008/(2*DEa_462))*Df462[0]
lambda_476 = (.008/(2*DEa_476))*Df476[0]
```

λ [m]

```
print(lambda_433)
print(lambda_447)
print(lambda_462)
print(lambda_476)
```

```
4.1222947440741874e-05
-1.5895092390224959e-06
-6.410256410256384e-06
1.2213740458015496e-05
```

#answers in m⁻²

```
k = 1.38065E-23
```

```
sigma_433 = k*433/(8.7*10**(9-3110/433))*lambda_433)
sigma_447 = k*447/(8.7*10**(9-3110/447))*lambda_447)
sigma_462 = k*462/(8.7*10**(9-3110/462))*lambda_462)
sigma_476 = k*476/(8.7*10**(9-3110/476))*lambda_476)
```

```
print(sigma_433)
print(sigma_447)
print(sigma_462)
print(sigma_476)
```

σ [m⁻²]

```
2.537238176129249e-19
-4.04672058252422e-18
-6.164993884584369e-19
2.113177878631772e-19
```