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Strain Gauge Lab



Figure 1: The above figure shows the change in voltage with respect to the amount of mass added to the “fishing hook”

The data was gathered by recording the average voltage of the unloaded and loaded system.

|  |  |  |
| --- | --- | --- |
| Mass (grams) | Unloaded Voltage (mV) | Loaded Voltage (mV) |
| 8.5 | 20 | 64 |
| 15.7 | 21 | 83 |
| 74.9 | 20 | 382 |
| 47.9 | 26 | 220 |
| 28.7 | 27 | 172 |
| 76.6 | 50 | 418 |
| 92.3 | 47 | 509 |
| 167.2 | 47 | 926 |
| 122.8 | 81 | 666 |
| 151.5 | 71 | 801 |

The associated change in electrical resistance is that would cause a change in voltage of 20mV is .003717Ω.

To approximate the mass that would cause a 20mV change we can use equation of the line of best fit:. Using this equation, it was calculated that a 7.46 gram mass would cause a 20mV change.

