1041 电阻的测量 数据处理报告模板

实验一：伏安法测电阻

原始数据记录：

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| y=U/V | #y1# | #y2# | #y3# | #y4# | #y5# | #y6# | #y7# | #y8# |
| x=I/A | #x1# | #x2# | #x3# | #x4# | #x5# | #x6# | #x7# | #x8# |
| y^2=u^2/v^2 | #y21# | #y22# | #y23# | #y24# | #y25# | #y26# | #y27# | #y28# |
| x^2=I^2/A^2 | #x21# | #x22# | #x23# | #x24# | #x25# | #x26# | #x27# | #x28# |
| xy=IU/AV | #xy1# | #xy2# | #xy3# | #xy4# | #xy5# | #xy6# | #xy7# | #xy8# |

数据处理：线性回归：

=#ave\_y#

=#ave\_x#

= #b#

a= #a#

=#r# 相关性强

R2=Rg

=#Rx# Ω

Rx不确定度计算：

#ua\_b#

u(U)==0.00433 V

u(I)==4.33\*1e-5 A

ub(Rx)/Rx = =#ub\_rx\_rx#

ub(Rx) = #ub\_rx#

u(Rx)==#u\_rx#

Rx=#fin\_Rx# Ω

实验二 半偏法测检流计内阻和电流常数ki

**原始数据记录：**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R1/Ω | U/V | R0/Ω | d/div | R2/Ω |
| **#2r1#** | **#2v#** | **#2r0#** | **#2d#** | **#2r2#** |

Rg=R2 = #2r2#

不确定度计算：

=#2ub\_r2#

Rgu(Rg) = #2r2# + #2fin\_rg#

=#2ki#

u(R0) = #u\_r0#

u(R1) = #u\_r1#

u(R2) = #u\_r2#

u(v) = #u\_v#

u(d) = #u\_d#

u(R0+R1) = #u\_mix#

u(ki) = #u\_ki#

则ki = #2ki# + #u\_ki#

实验三 伏安法测高电阻

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rs/Ω | V/V | d/dw | Rg/Ω | ki |
| #3rs# | #3v# | #3d# | #3rg# | #3ki# |

Rxh=(Rs)/((Rs+Rg)ki)\*(v/d)= #fin\_3rxh#Ω

U(Rs)=(Δ仪（Rs）/sqrt(3)) = #u3\_rs#

U(Rg) = #u3\_rg#

U(Rg+Rs)= sqrt(U(Rg)^2 + U(Rs)^2) = #u3\_r#

U(V)= (Δ仪（Rs）/sqrt(3)) =(Δ仪（Rs）/sqrt(3)) = #u3\_v#

U(d) = #u3\_d#

U(ki) = #u3\_ki#

U(Rxh)/Rxh = #fin\_u\_3rxh\_3rxh#

U(Rxh) = #fin\_u\_3rxh# Ω

Rxh = #fin\_s\_3\_rxh#

使用说明：将实验报告中与数据本身无关的公式以及数据表格提前打好，将需要填充数据的地方以“#key#”的方式预留好。然后调用程序处理数据即可得到一份完整的实验报告。