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| **五、实验数据**  **1.观察测量铁磁质的磁滞回线：**   |  |  |  | | --- | --- | --- | | **序号** | **X/mV** | **Y/mV** | | **1** | **0** | **-272** | | **2** | **-480** | **-384** | | **3** | **-360** | **-504** | | **4** | **-2040** | **-568** | | **5** | **-360** | **0** | | **6** | **-240** | **120** | | **7** | **-80** | **288** | | **8** | **0** | **336** | | **9** | **920** | **520** | | **10** | **1880** | **640** | | **11** | **2000** | **624** | | **12** | **520** | **240** | | **13** | **360** | **0** | | **14** | **280** | **-120** | | **15** | **160** | **-176** | | **16** | **-160** | **-328** | | **17** | **-760** | **-440** |  1. **测绘磁化曲线：**  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **序号** | **X/mV** | **Y/mV** | **序号** | **X/mV** | **Y/mY** | | **1** | **50** | **10** | **9** | **640** | **432** | | **2** | **100** | **25** | **10** | **680** | **440** | | **3** | **150** | **46** | **11** | **760** | **448** | | **4** | **200** | **75** | **12** | **960** | **504** | | **5** | **240** | **130** | **13** | **1800** | **616** | | **6** | **280** | **160** | **14** | **0** | **0** | | **7** | **360** | **288** | **15** |  |  | | **8** | **520** | **368** | **R1=50Ω** | **R2=12kΩ** | **C=3μF** | |
| 1. **数据处理** 2. **铁磁质的磁滞曲线绘制：根据公式 :H=(N1\*Ux)/(L\*R1) B=C\*R2\*UY/(N2\*S)**   **(其中，L=0.075m, S=1.20✖10-4m2, N1=N2=N3=150, R1=50Ω, R2=12kΩ, C=3μF)**  **求得数据，绘制成表格和曲线如下：**   |  |  |  | | --- | --- | --- | | **序号** | **H（A/m）** | **B/mT** | | **1** | 0 | -544 | | **2** | -19.2 | -768 | | **3** | -14.4 | -1008 | | **4** | -81.6 | -1136 | | **5** | -14.4 | 0 | | **6** | -9.6 | 240 | | **7** | -3.2 | 576 | | **8** | 0 | 672 | | **9** | 36.8 | 1040 | | **10** | 75.2 | 1280 | | **11** | 80 | 1248 | | **12** | 20.8 | 480 | | **13** | 14.4 | 0 | | **14** | 11.2 | -240 | | **15** | -6.4 | -656 | | **16** | -30.4 | -880 |  1. **磁化曲线的绘制：根据公式: H=UX\*N/(R1\*L) B=R2\*C\*UY/(N\*S) 求得数据，绘制表格和曲线如下：**  |  |  |  | | --- | --- | --- | | **序号** | **H（A/m）** | **B/mT** | | **1** | 2 | 20 | | **2** | 4 | 50 | | **3** | 6 | 92 | | **4** | 8 | 150 | | **5** | 9.6 | 260 | | **6** | 11.2 | 320 | | **7** | 14.4 | 576 | | **8** | 20.8 | 736 | | **9** | 25.6 | 864 | | **10** | 27.2 | 880 | | **11** | 30.4 | 896 | | **12** | 38.4 | 1008 | | **13** | 72 | 1232 | | **14** | 0 | 0 | | **15** | 2 | 20 |      1. **结果陈述：**   **最终得到的铁磁质的磁滞曲线和磁化曲线的最高点几乎重合。当材料磁化时，磁感应强度B不仅与当时的磁场强度H有关，而且与以前的磁化状态有关。磁感应强度的大小B随磁场强度的大小H增加，但变化是非线性的，当磁场强度变化到一定大小（H=Hs）时，铁磁质内的磁感强度B几乎不再增大。磁化曲线的图像呈单调增长的趋势，且趋势由大渐小** | |
| **八、实验总结与思考题**  **1.实验总结：**  **本次实验学会了示波器的用法，初步了解了铁磁质相关知识，了解了磁化原理，对变量转化法有了深刻的认识。**  **2.思考题：**  **（1）Uc对应的是B还是H？请说明理由。**  **它对应的是B，因为感应电动势是由于B引起的。**  **（2）测量磁滞回线要使材料达到磁饱和，退磁也应从磁饱和开始，意义何在？**  **由于材料可能存有剩磁，先退磁是为了保证外力磁场H=0，B=0，从而使得图像形成一条闭合的曲线。** | |
| 指导教师批阅意见： | |
| 成绩评定：     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **预习**  （20分） | **操作及记录**  （40分） | 数据处理与结果陈述30分 | 思考题  10分 | **报告整体**  **印 象** | **总分** | |  |  |  |  |  |  | | |