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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **六、数据处理**  **λ＝589.3nm**   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **环的级数** | **m** | **24** | **23** | **22** | **21** | **20** | **19** | **18** | **17** | **16** | **15** |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **环的直径Dm** | **(mm)** | 9.233 | 9.054 | 8.883 | 8.697 | 8.446 | 8.232 | 8.012 | 7.776 | 7.551 | 6.415 | | **Dm2** | **(mm2 )** | 85.248 | 81.975 | 78.908 | 75.638 | 71.335 | 67.766 | 64.192 | 60.466 | 57.018 | 41.152 |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **环的直径Dn** | **(mm)** | 7.067 | 6.853 | 6.598 | 6.279 | 5.022 | 5.711 | 5.419 | 5.037 | 4.718 | 4.270 | | **Dn2** | **(mm2 )** | 49.942 | 46.964 | 43.534 | 39.426 | 25.220 | 32.616 | 29.366 | 25.371 | 22.260 | 18.233, |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Dm2-Dn2** | **(mm2 )** | 35.306 | 35.011 | 35.374 | 36.212 | 46.114 | 35.150 | 34.827 | 35.095 | 34.758 | 22.919 | |  | **(m)** | 1.498 | 1.485 | 1.501 | 1.536 | 1.956 | 1.491 | 1.477 | 1.489 | 1.475 | 0.972 | | **△R** | **(m)** | 0.010 | 0.003 | 0.013 | 0.048 | 0.468 | 0.003 | 0.011 | 0.001 | 0.014 | 0.516 |   R== （1.498+1.485+1.501+1.536+1.956+1.491+1.477+1.489+1.475+0.972）/10=1.48807  Δ‾R==(0.010+0.003+0.013+0.048+0.468+0.003+0.011+0.001+0.014+0.516)/10=0.10853  误差分析计算：  R=‾R±Δ‾R=1.48807±0.10853 **(m)** |
| **七、结果陈述：**  **球面镜的曲率半径**R=‾R±Δ‾R=1.48807±0.10853 **(m)** |
| **八、实验总结与思考题**  **总结：**  **本次实验了解了等厚干涉的实验原理，对用干涉法测量微小量有初步了解**,**同时也了解了利用牛顿环测定球面镜的曲率半径的方法，并且熟悉了避免系统误差的实验方法---多项逐差法。**  **思考题：**   1. **因为半径R只与测定各环的环数差有关，无须确定各环级数。显微镜是用来读环数的，在计算中可将零误差消去。**   **2.越靠近边缘，牛顿环的斜率越大，也就是说，产生加强的点和减弱的点的水平距离越来越短。所以条纹越来越细密** |
| 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** | |  |  |  |  |  |  | |