### 磁化指标

* 椭圆偏心率：软磁干扰
* 椭圆圆心：硬磁干扰

**拟合结果失真指标：**

* 一次拟合残差（当残差大于某个值说明拟合结果不可信）

**拟合效果指标：**

* 补偿后的数据椭圆拟合偏心率和圆心：均为0，说明一次拟合效果好。
* 二次拟合与一次拟合残差对比:有效减小说明拟合效果好。

### 结论

* 拟合效果不错。
* 但失真度需要进一步检验，当数据严重偏离一个平面时失真严重。办法：采集更多数据，剔除离平面较远的点。

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| --- | --- | --- | --- | --- | --- | --- |
| 实验序号 | 偏心率 | 圆心  nT  Hxy Norm占比 | 原始数据拟合残差—均值/nT | 原始数据拟合残差—方差/nT | 补偿后数据拟合残差—均值/nT | 补偿后数据拟合残差—方差/nT |
| 1  (在桌面转动，底朝下) | 0.189 | ( 2423.656,9802.763 )  ( 0.086,0.348 ) | -1115.923 | 13010.289 | -5.517 | 64.323 |
| 2  （桌面转动，右侧面朝下） | 0.279 | ( 2667.928,-2160.491 )  ( 0.095,-0.077 ) | -1468.638 | 14199.155 | -7.160 | 69.224 |
| 3  (在桌面转动，左侧面朝下) | 0.223 | ( 2526.677,-1707.991 )  ( 0.090,-0.061 ) | 29.588 | 13591.418 | 0.145 | 66.709 |
| 4  (在桌面，前侧面朝下) | 0.151 | ( 7220.413,-9741.219 )  ( 0.257,-0.346 ) | -631.811 | 13227.595 | -3.077 | 64.411 |
| 5  （空中，底朝下） | 0.329 | ( 2171.228,10100.133 )  ( 0.077,0.359 ) | -359.706 | 16398.852 | -1.554 | 70.844 |
| 6  （侧面朝下） | 0.473 | ( 2593.138,-12538.645 )  ( 0.092,-0.446 ) | 388.003 | 19425.165 | 1.621 | 81.148 |

### 实验1

转动方法：在桌面转动，底朝下

magn\_1 eccentricity = 0.189 center =( 2423.656,9802.763 )=( 0.086,0.348 )of Hnxy norm

The ellipse fitting error( First ): mean= -1115.923 std= 13010.289

The ellipse fitting error( Second ): mean= -5.517 std= 64.323



### 实验2

转动方法：在桌面转动，右侧面朝下

magn\_2 eccentricity = 0.279 center =( 2667.928,-2160.491 )=( 0.095,-0.077 )of Hnxy norm

The ellipse fitting error( First ): mean= -1468.638 std= 14199.155

The ellipse fitting error( Second ): mean= -7.160 std= 69.224

### 实验3

转动方法：在桌面转动，左侧面朝下

magn\_3 eccentricity = 0.223 center =( 2526.677,-1707.991 )=( 0.090,-0.061 )of Hnxy norm

The ellipse fitting error( First ): mean= 29.588 std= 13591.418

The ellipse fitting error( Second ): mean= 0.145 std= 66.709



### 实验4

转动方法：在桌面，前侧面朝下

magn\_4 eccentricity = 0.151 center =( 7220.413,-9741.219 )=( 0.257,-0.346 )of Hnxy norm

The ellipse fitting error( First ): mean= -631.811 std= 13227.595

The ellipse fitting error( Second ): mean= -3.077 std= 64.411



### 实验5

转动方法：空中，底朝下

magn\_5 eccentricity = 0.329 center =( 2171.228,10100.133 )=( 0.077,0.359 )of Hnxy norm

The ellipse fitting error( First ): mean= -359.706 std= 16398.852

The ellipse fitting error( Second ): mean= -1.554 std= 70.844



### 实验6

转动方法：空中，侧面朝下

magn\_6 eccentricity = 0.473 center =( 2593.138,-12538.645 )=( 0.092,-0.446 )of Hnxy norm

The ellipse fitting error( First ): mean= 388.003 std= 19425.165

The ellipse fitting error( Second ): mean= 1.621 std= 81.148

