**Table 1** Parameters of the samples

|  |  |  |  |
| --- | --- | --- | --- |
| Samples | Exact doping amount of Tb (%) | Crystallinity (%) | Crystal size (nm) |
|
| Pure TiO2 | 0 | 99.69 | 12.7 |
| 0.5%Tb-TiO2 | 0.4996 | 98.76 | 11.8 |
| 1.0%Tb-TiO2 | 0.9899 | 99.18 | 10.8 |
| 1.5%Tb-TiO2 | 1.4972 | 95.31 | 10.4 |
| 2.0%Tb-TiO2 | 2.0046 | 97.51 | 10.1 |