Supplement

**Thermodynamic and magnetic properties of praseodymium stannate**

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Table S1. Experimental heat capacity of Pr2Sn2O7, in J/(mol K).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *T*, K | *C*p | *T*, K | *C*p | *T*, K | *C*p | *T*, K | *C*p |
| Series 1 | | 207.18 | 189.9 | 90.21 | 86.49 | 33.71 | 21.79 |
| 103.82 | 102.0 | 211.73 | 192.6 | 92.59 | 89.27 | 35.52 | 23.52 |
| 107.58 | 106.1 | 216.28 | 195.3 | 95.13 | 92.20 | 37.32 | 25.24 |
| 111.31 | 110.1 | 220.95 | 197.7 | 97.75 | 95.19 | 40.66 | 28.44 |
| 115.04 | 114.0 | 225.43 | 200.0 | Series 5 | | 42.95 | 30.68 |
| 118.76 | 117.8 | 230.14 | 202.4 | 7.90 | 0.6589 | 44.75 | 32.49 |
| 122.49 | 121.6 | 234.64 | 204.8 | 8.64 | 0.9145 | 46.52 | 34.32 |
| 126.21 | 125.3 | 239.22 | 207.1 | 9.31 | 1.112 | 48.30 | 36.19 |
| 130.17 | 129.2 | 243.80 | 209.5 | 9.70 | 1.286 | 50.06 | 38.10 |
| 133.89 | 132.8 | 248.25 | 211.8 | 10.67 | 1.857 | 51.83 | 40.05 |
| 137.62 | 136.3 | 252.68 | 213.8 | 11.48 | 2.223 | 53.60 | 42.05 |
| 141.37 | 139.8 | 257.06 | 215.7 | 12.73 | 2.959 | 55.36 | 44.08 |
| 145.11 | 143.2 | 261.42 | 217.6 | 13.27 | 3.515 | 57.11 | 46.13 |
| 148.93 | 146.6 | 265.75 | 219.4 | 14.37 | 4.015 | 58.86 | 48.21 |
| Series 2 | | 270.05 | 221.1 | 15.74 | 5.133 | 60.60 | 50.31 |
| 143.75 | 141.9 | 274.32 | 222.7 | 16.69 | 6.012 | 62.35 | 52.44 |
| 148.47 | 146.2 | 278.57 | 224.3 | 17.26 | 6.548 | 64.11 | 54.59 |
| 152.13 | 149.4 | 282.76 | 225.9 | 18.63 | 7.688 | 65.86 | 56.76 |
| Series 3 | | 286.93 | 227.4 | 19.88 | 8.775 | 67.62 | 58.94 |
| 164.39 | 159.6 | 291.04 | 228.8 | 20.79 | 9.659 | 69.46 | 61.22 |
| 169.13 | 163.4 | 295.12 | 230.1 | 22.63 | 11.02 | 71.22 | 63.41 |
| 172.79 | 166.2 | 299.05 | 231.4 | 24.80 | 12.79 | 73.18 | 65.84 |
| 176.43 | 169.0 | 303.63 | 232.9 | 26.86 | 14.67 | 75.38 | 68.57 |
| 180.08 | 171.7 | 310.04 | 234.8 | Series 6 | | 77.60 | 71.31 |
| 183.72 | 174.3 | 317.49 | 237.0 | 22.62 | 12.62 | 79.83 | 74.05 |
| 187.36 | 176.9 | 324.89 | 239.0 | 24.41 | 13.10 | 82.08 | 76.78 |
| 191.01 | 179.4 | 332.20 | 241.0 | 26.33 | 14.50 | 84.34 | 79.52 |
| 194.68 | 181.9 | 339.45 | 242.8 | 28.22 | 16.30 | 86.62 | 82.25 |
| 198.40 | 184.3 | 346.58 | 244.5 | 30.06 | 18.20 |  |  |
| 202.49 | 187.0 | Series 4 | | 31.89 | 20.02 |  |  |

Table S2. Coefficients of equation (1) for Pr2Sn2O7 heat capacity

|  |  |
| --- | --- |
| *j* | *Aj*  J/(mol K) |
| 0 | -0.179101 |
| 1 | 0.239855103 |
| 2 | 0.1766969105 |
| 3 | -0.137358618106 |
| 4 | 0.513804873106 |
| 5 | -0.111208153107 |
| 6 | 0.141633566107 |
| 7 | -0.98483615106 |
| 8 | 0.28839652106 |

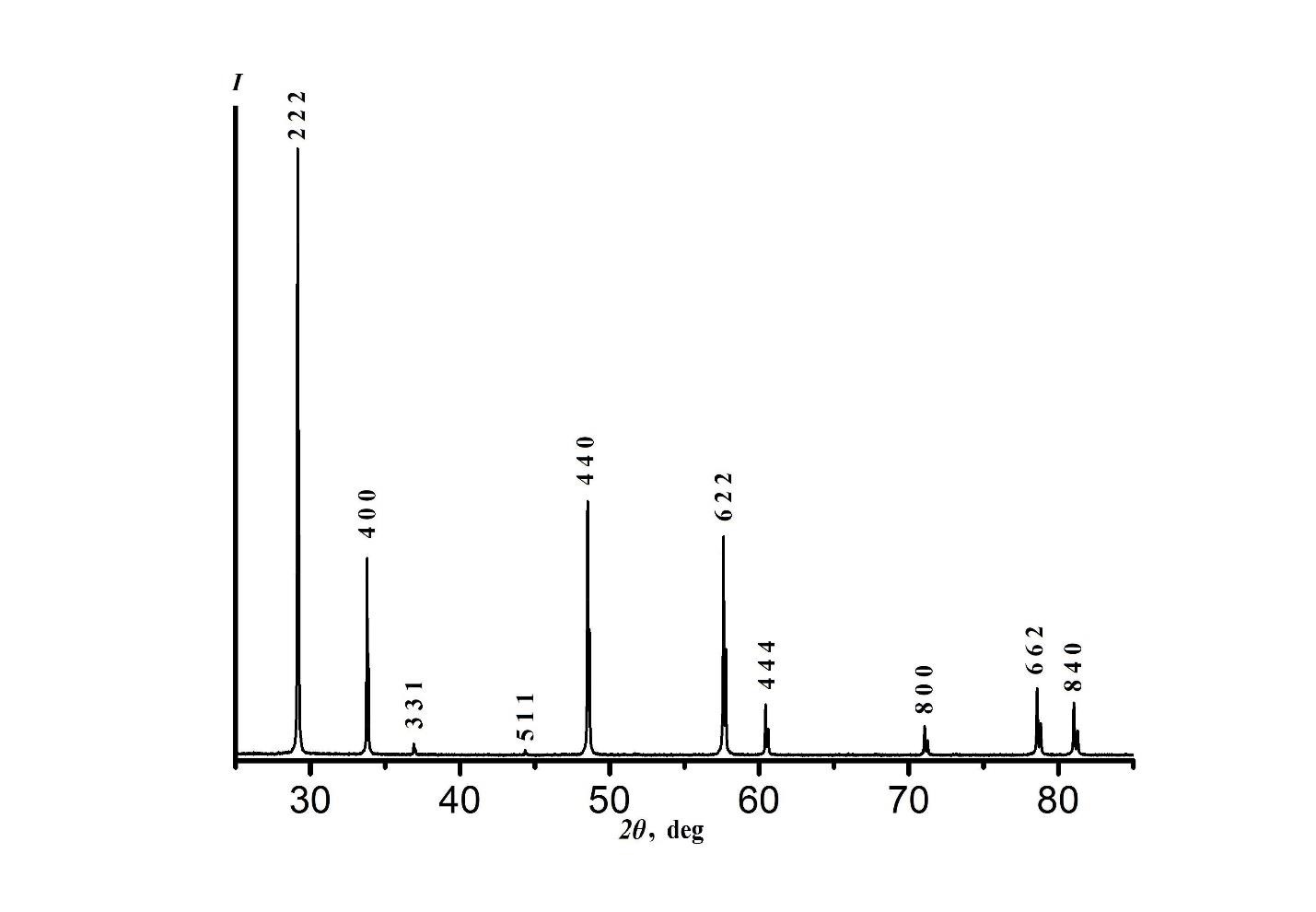


Fig.S1. X-ray pattern of Pr2Sn2O7 specimen.

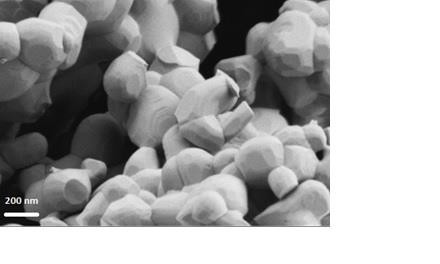


Fig.S2. SEM image of Pr2Sn2O7 ceramics.

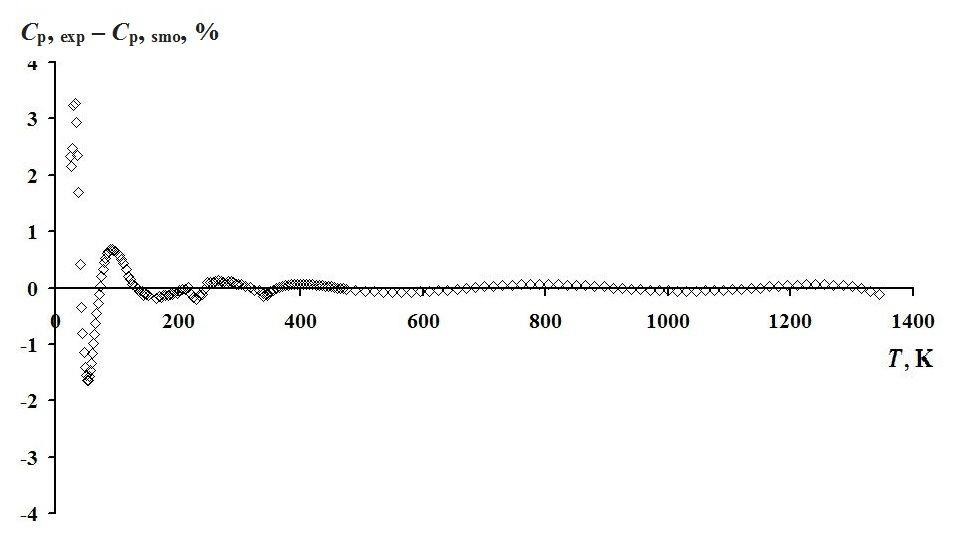


Fig.S3. Deviation of experimental heat capacities of Pr2Sn2O7 from smoothed values.