

Abstract Submitted
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Ferromagnetism of MnO and Mn₃O₄ nanowires MYUNG-HWA JUNG, Quantum Materials Research Team, Korea Basic Science Institute, Daejeon 305-333, Korea, JEUNGHEE PARK, Department of Chemistry, Korea University, Jochiwon 339-700, Korea, KOREA BASIC SCIENCE INSTITUTE COLLABORATION, KOREA UNIVERSITY COLLABORATION — The MnO and Mn₃O₄ nanowires were grown by thermal evaporation of MnCl₂ under the Ar flow. The diameter is in the range 50-100 nm and the length is about 20 μ m. The MnO and Mn₃O₄ nanowires consist of single-crystalline cubic MnO and tetragonal Mn₃O₄ crystals, respectively, grown uniformly with the [100] direction. The XPS data suggest that the majority of nanowires could be MnO nanowires. The temperature-dependent FC and ZFC magnetization curves with H=0.1-30 kOe, and the hysteresis curves measured at 5-300 K provide an evidence for the ferromagnetism with TC = 12 K and 43 K, for the MnO and Mn₃O₄ nanowires, respectively. The hysteresis curves at low temperatures were resolved well by two ferromagnetic components based on Brillouin function form, confirming the ferromagnetism of both MnO and Mn₃O₄ nanowires. We conclude that the single-crystalline MnO and Mn₃O₄ nanowires could be excellent ferromagnetic nanomaterials.

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