Supporting Information

Formation of YF$_3$ Nanocrystals and Their Self-Assembly into Hollow Peanut-Like Structures

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Figure S1. XRD patterns of the products from different fluoride sources and different reaction time (a: NaBF₄; b: KBF₄; c: NH₄BF₄; d: HBF₄)
Figure S2. The XPS of the YF₃ crystals obtained from different fluorides after 12 h of reaction time.
Figure S3. TEM and SEM images of the products from different fluoride sources and different reaction time. a1: KBF₄, 1 h; a2: KBF₄, 4 h; a3-a4: KBF₄, 6 h; a5: KBF₄, 6 h, after grinding; b1: NH₄BF₄, 1 h; b2: NH₄BF₄, 4 h; b3-b4: NH₄BF₄, 6 h. b5: NH₄BF₄, 6 h, after grinding.
Figure S4. The XRD patterns of the solid mixtures obtained from the clear solution after collecting YF₃. (a) NaBF₄: the mixture is H₃BO₃ (JCPDS No: 73-2158) and Na₂B₂O₄ (JCPDS No.22-1344); (b) KBF₄, the mixture is H₃BO₃ (JCPDS No. 73-2158) and KB₅O₈ (JCPDS No.19-0987); (c) NH₄BF₄, the mixture is H₃BO₃ (JCPDS No: 73-2158) and (NH₄)₃B₁₅O₂₀(OH)₈(H₂O)₄ (JCPDS No. 73-1079); (d) HBF₄, the mixture is H₃BO₃ (JCPDS No: 73-2158).