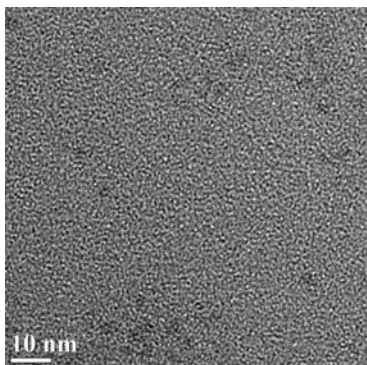


Synthesis of MnAl Nanoparticles

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We seek to discover new chemistry to prepare MnAl nanoparticles with a narrow distribution of particle sizes and particle compositions. Co-reduction of a mixture of aluminum(III) chloride and manganese(II) chloride using n-butyl lithium in phenyl ether with oleic acid ligands gave 5 nm diameter MnAl nanoparticles with an average composition of $\text{Mn}_{55}\text{Al}_{45}$. The particles had a face-centered cubic structure. A sample of 587 particles had a Gaussian distribution of particle diameters with an average particle diameter of 4.6 nm and a standard deviation of 0.5 nm.



TEM Image of the MnAl nanoparticles



HAADF Image of the MnAl nanoparticles