#### **Supporting Information**

### Modification in Structure, Phase Transition and Magnetic Property of Metallic Gallium Driven by Atom-Molecule Interactions

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## Figure 1 Photographs of (a) Ga–0, (b) Ga–1a, (c) Ga–1b, (d) Ga–1c and (e) Ga–1d.



Figure 2 TG (A) and DTG (B) profiles of (a)  $\beta$ -CD and (b) Ga-3a.



## Figure 3 Raman spectra of the residual products (a) β-CD and (b) Ga-3f after sintering at 773.2 K for 0.5 h in nitrogen.



Figure 4 XRD patterns of the residual products (a)  $\beta$ -CD and (b) Ga-3f after sintering at 773.2 K for 0.5 h in nitrogen.



# Table 1 Binding energies (eV) of some core levelsin Ga–3f.

Sample		E	Binding en	ergy (eV)	
	Ga 3d	Ga 2p <sub>3/2</sub>	Ga 2p <sub>1/2</sub>	C 1s	O 1s
Ga–3f	21.4	1119.2	1146.0	284.8	533.2

Figure 5 Continuous DSC heating and cooling curves of Ga–3e in the second cycle.

