Supplementary Material

Low temperature synthesis of iron containing carbon nanoparticles in critical carbon dioxide

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X-ray diffraction of iron containing carbon particles

Fig. S-1  X-ray diffraction spectrum of iron containing carbon particles corresponding to Fig. 2 in the paper. Iron particles are composed of several domains of bcc and fcc lattice structures, whereas carbon shells are formed by domains of graphitic carbon layers.
Iron containing carbon particles produced in sub-critical CO$_2$ (25.0 °C)

**Fig. S-2** TEM images and EDS mappings of selected areas of a material formed on the surface of the quartz glass in sub-critical CO$_2$ (25.0 °C). (a) TEM image of a selected area of the material. (b) TEM image of another area. (c) EDS mapping of carbon corresponding to image (a). (d) EDS mapping of iron corresponding to image (a). The material is formed by partially crystallised iron particles, which were captured by partially graphitised carbon shells.
Iron containing carbon particles produced in near-critical CO$_2$ (31.0 °C)

Fig. S-3  TEM images and EDS mappings of selected areas of a material formed on the surface of the quartz glass in near-critical CO$_2$ (31.0 °C). (a) TEM image of a selected area of the material. (b) TEM image of another area. (c) EDS mapping of carbon corresponding to image (a). (d) EDS mapping of iron corresponding to image (a). The material is formed by partially crystallised iron particles, which were captured by partially graphitised carbon shells.
Bamboo structures produced in super-critical CO$_2$ (41.0 °C)

Fig. S-4 TEM images and EDS mappings of bamboo structures formed on the surface of the quartz glass. (a) TEM image of a bamboo. (b) TEM image of another bamboo. (c) EDS mapping of carbon corresponding to image (a). (d) EDS mapping of iron corresponding to image (a). The bamboos are composed of carbon and iron atoms.