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Supplementary Information

Liquid metal core-shell structures functionalised *via* mechanical agitation: the example of Field's metal†

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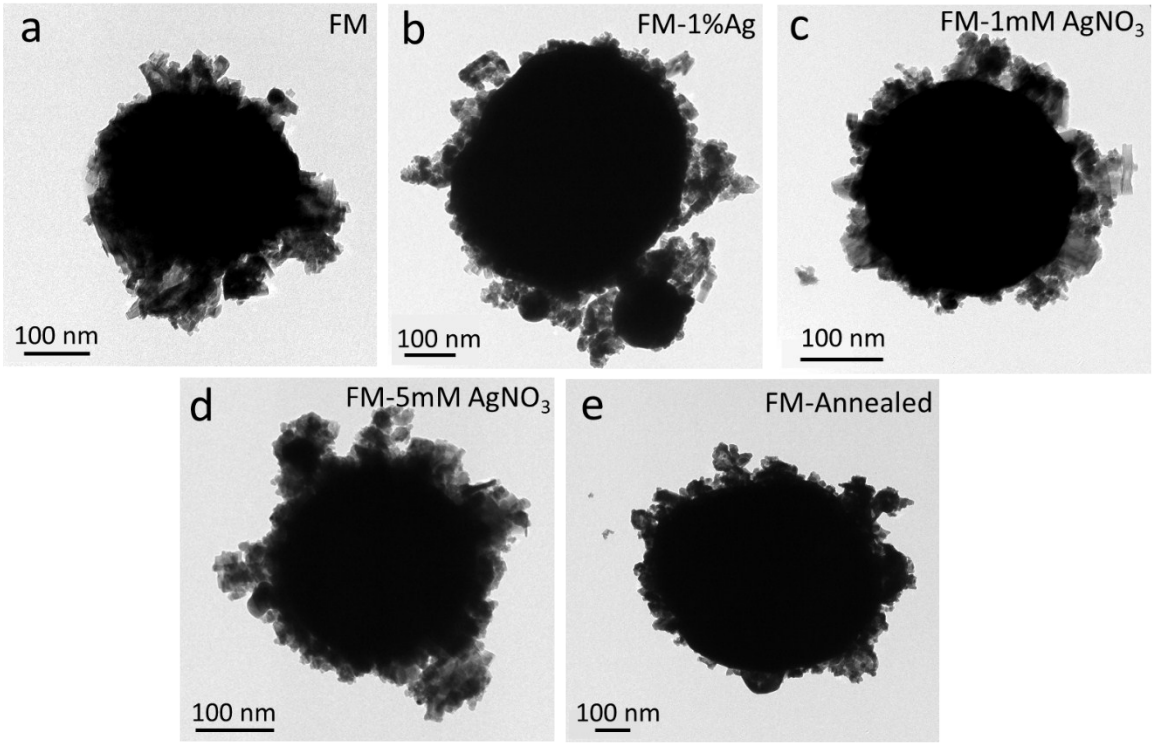

Fig. S1 TEM images of (a) FM, (b) FM-1%Ag, (c) FM-1mM $AgNO_3$, (d) FM-5mM $AgNO_3$ and (e) FM-Annealed.

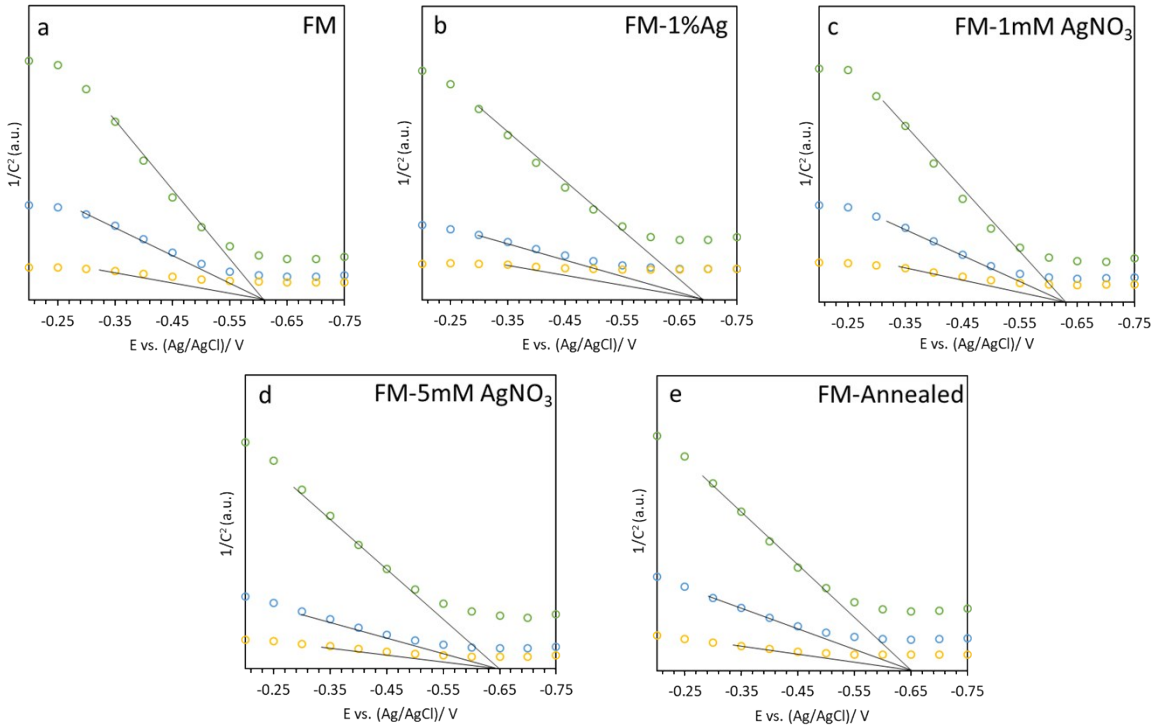

Fig. S2 Mott-Schottky plots for (a) FM, (b) FM-1%Ag, (c) FM-1mM $AgNO_3$, (d) FM-5mM $AgNO_3$ and (e) FM-Annealed.

Table S1 Degradation rate of Congo red for with the presence of FM, FM-1%Ag, FM-5 mM $AgNO_3$ and FM-Annealed catalysts under solar light irradiation for 2 hours.

Time (min)	Degradation rate of Congo red dye with the presence of photocatalysts (%)			
	FM	**FM-1%Ag**	**FM-5mM $AgNO_3$**	**FM-Annealed**
0	0.00	0.00	0.00	0.00
20	7.67	5.81	12.68	2.36
40	12.66	11.33	19.61	4.86
60	17.04	17.14	26.85	6.59
80	20.80	22.22	32.38	10.30
100	24.51	28.70	37.35	10.80
120	28.56	33.81	43.84	12.80

Table S2 Degradation rate of Methylene blue for with the presence of FM, FM-1%Ag, FM-1 mM $AgNO_3$, FM-5 mM $AgNO_3$ and FM-Annealed catalysts under solar light irradiation for 2 hours.

Time (min)	Degradation rate of methylene blue dye with the presence of photocatalysts (%)				
	FM	**FM-1%Ag**	**FM-1mM $AgNO_3$**	**FM-5mM $AgNO_3$**	**FM-Annealed**
0	0.00	0.00	0.00	0.00	0.00
20	13.28	13.97	12.07	12.50	13.04
40	25.73	25.71	22.27	23.66	25.93
60	36.61	36.70	32.64	34.97	37.06
80	47.06	46.51	43.45	45.28	46.94
100	56.63	56.85	52.71	54.18	55.59
120	64.57	64.48	61.18	61.54	64.43

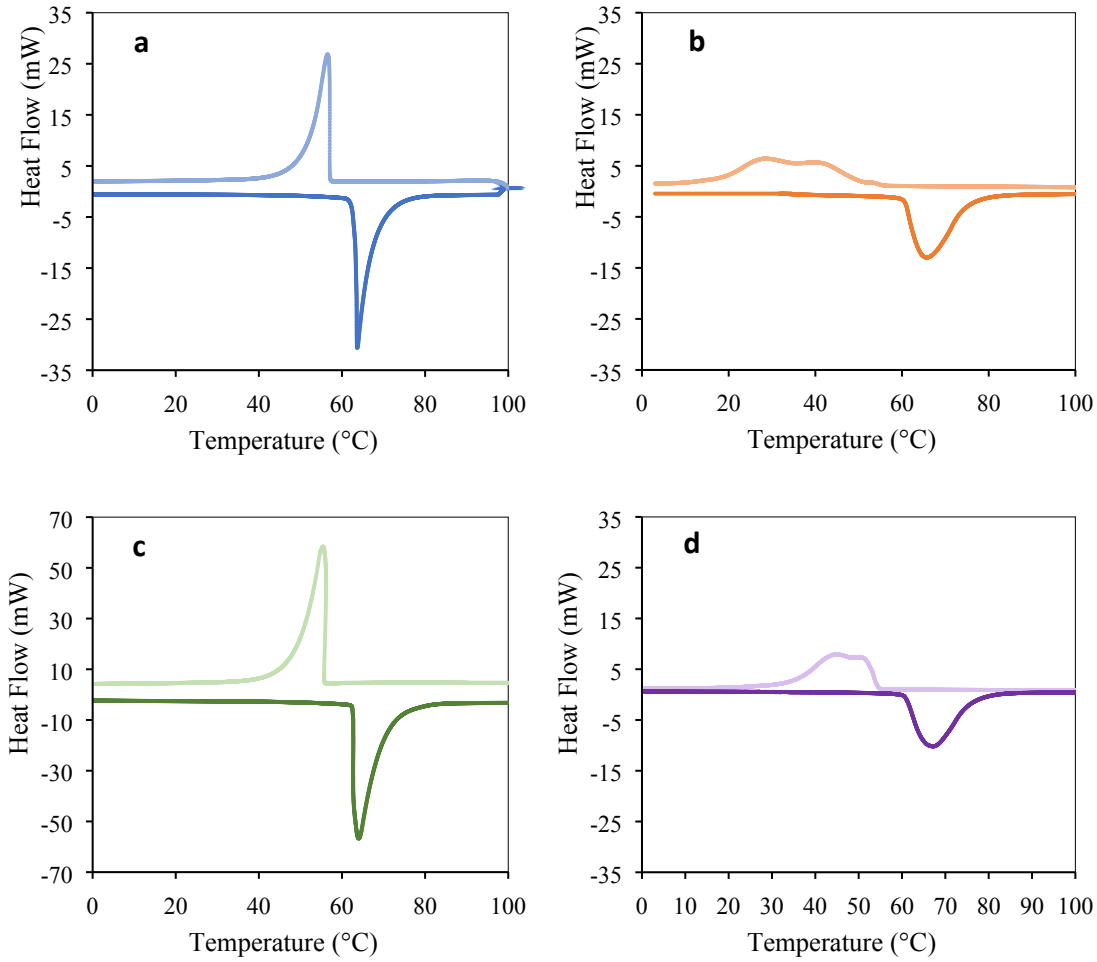

Fig. S3 The DSC curves of (a) bulk Field's metal, (b) Field's metal particles (c) bulk Field's metal with incorporated Ag and (d) Field's metal particles with incorporated Ag that show the solidification (dotted lines) and melting (solid lines).

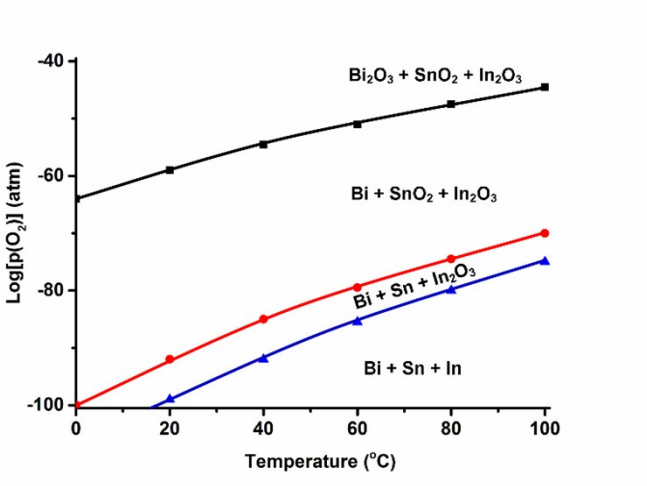

Fig. S4 The oxidation of the Bi-Sn-In-O system under different conditions calculated using the Field's metal composition by FactSage software.[1]

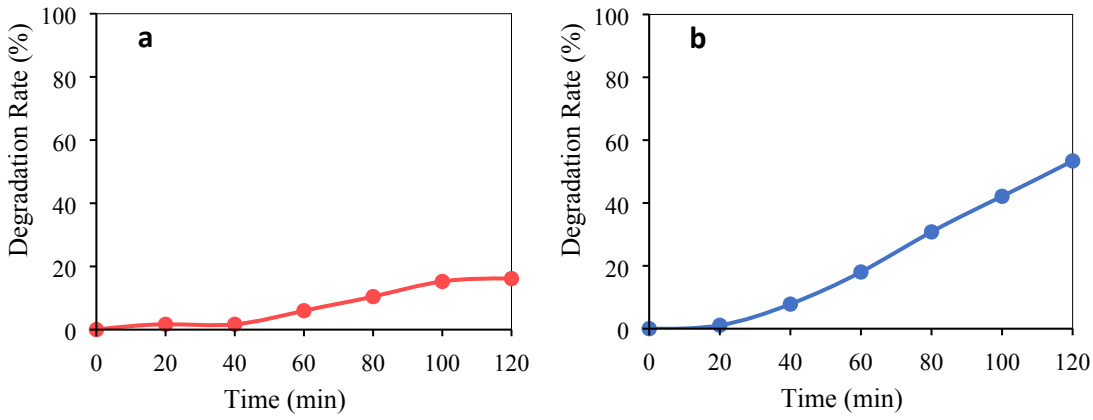

Fig. S5 Photocatalytic activity of the Ag particles towards (a) Congo red and (b) methylene blue.

References

1. C. W. Bale, E. Bélisle, P. Chartrand, S. A. Decterov, G. Eriksson, A. E. Gheribi, K. Hack, I. H. Jung, Y. B. Kang, J. Melançon, A. D. Pelton, S. Petersen, C. Robelin, J. Sangster, P. Spencer and M. A. Van Ende, *Calphad*, 2016, **54**, 35.