

Supplementary Materials

Soft Ferromagnetic Bulk Metallic Glass with Potential Self-Healing Ability

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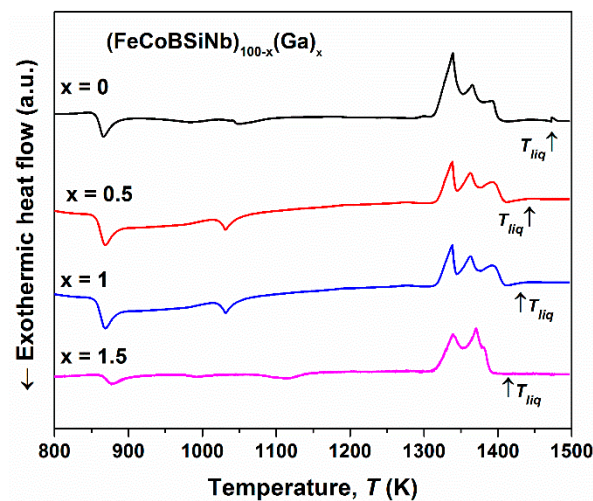


Figure S1. DSC traces (heating rate 20 K/min) of as-cast $[\text{FeCoBSiNb}]_{100-x}(\text{Ga})_x$ ($x = 0, 0.5, 1$ and 1.5) glassy samples.

Figure 1 depicts the DSC traces of as-cast glassy samples up to 1500 K. The liquidus temperatures of the $[\text{FeCoBSiNb}]_{100-x}(\text{Ga})_x$ ($x = 0, 0.5, 1$ and 1.5) glasses are 1475 ± 5 , 1475 ± 5 , 1440 ± 5 and 1440 ± 5 K, respectively.

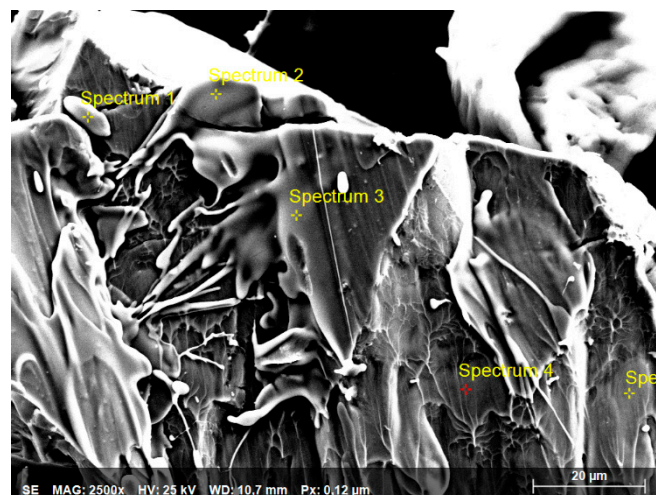


Figure S2. SEM, EDS and EBSD results obtained on a $[\text{FeCoBSiNb}]_{98.5}\text{Ga}_{1.5}$ sample after the compression test.

Figure 2 shows a fracture surface image of the $[\text{FeCoBSiNb}]_{98.5}\text{Ga}_{1.5}$ amorphous rods used for the mechanical testing. The chemical composition (in at.%) obtained at different regions using EDS are given in Table 1. The EDS results prove the existence of Ga-rich and Ga-poor regions in the sample. The spectra 1, 2 and 3 were recorded on molten regions, whereas 4 and 5 are on fractured zones without melting.

Table S1. EDS results of all the points in Atomic percent (%). Spectra 1, 2 and 3 were recorded on molten region, spectra 4 and 5 are on fractured zone without melting.

Spectrum	Carbon	Oxygen	Silicon	Iron	Cobalt	Gallium	Niobium
1	0,00	0,00	6,00	43,16	43,64	1,73	5,46
2	0,00	0,00	6,29	43,15	43,27	1,60	5,69
3	0,00	0,00	6,19	43,10	43,48	1,80	5,37
4	0,00	0,00	5,81	43,67	43,91	1,25	5,41
5	0,00	0,00	5,28	43,04	45,13	1,53	5,02
Mean	0,00	0,00	6,09	43,14	43,61	1,60	5,54
Sigma	0,00	0,00	0,19	0,09	0,24	0,02	0,11
Sigma mean			0,08	0,04	0,11	0,0	0,05

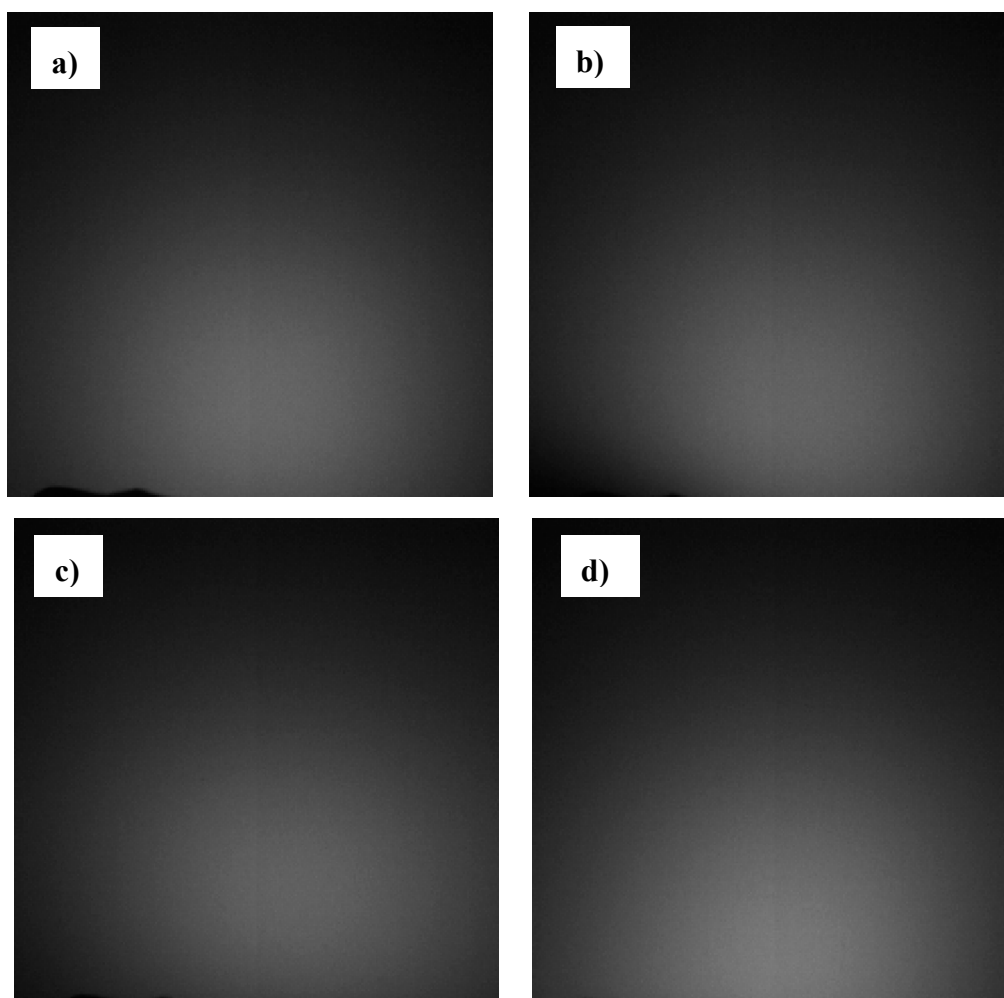


Figure S3. (a), (b), (c) and (d) are the EBSD patterns obtained from the fracture surface for the points 1, 2, 3 and 4, respectively.

Figure 3 shows the EBSD patterns obtained for the same spots where EDS measurements were done. The spectra 1, 2 and 3 are on molten regions, whereas 4 is on fractured zone without melting. The absence of Kikuchi bands indicates the amorphous nature of the molten droplets.