Fig. S1 XPS spectra of Fe 2p, Si 2p, B 1s, Nb 3d and O 1s for free-surface and roller-surface of $Fe_{70}Si_8B_{12}Nb_{10}$ ribbon with etching time t_e; the column shows the peak area of the

x	R_s ($\Omega \cdot cm^2$)	Q_{out} Y_{out} ($10^{-7}\Omega^{-1}s^n cm^{-2}$)	n_{out}	R_{out} ($\Omega \cdot cm^2$)	Q_{in} Y_{in} ($10^{-5}\Omega^{-1}s^n cm^{-2}$)	n_{in}	R_{in} ($\Omega \cdot cm^2$)	Q_a Y_a ($10^{-5}\Omega^{-1}s^n cm^{-2}$)	n_a	$R_a \times 10^4$ ($\Omega \cdot cm^2$)	$R_{total} \times 10^4$ ($\Omega \cdot cm^2$)	X^2 ($\times 10^{-4}$)
Free-surface	1.20	200.13	0.75	7.54	663	0.86	33.24	0.80	0.94	88.95	88.96	8.63
Rel. Std.error in percents	5.25	4.17	1.20	35.40	13.76	20.65	10.81	42.14	5.87	35.95		
Roller-surface	0.33	10.26	1.00	0.01	10.78	0.75	43.68	4.69	0.85	1.03	1.04	6.64
Rel. Std.error in percents	10.30	49.42	38.89	25.49	10.20	5.362	24.5	11.84	2.01	46.35		

corresponding oxides and elementary substance.

Table S1. Fitting results of EIS and corresponding errors.