Supporting information

Direct Writing on Copper Ion Doped Silica Films by Electrogeneration of Metallic Microstructures

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Si	0.45790061	1.00065821	-0.10644755
Si	-1.74255693	2.10382405	-1.87284718
Si	1.04145240	1.06119420	-3.18259797
Si	-0.9476804	-1.80586659	-0.39317618
Si	-0.55081006	-1.54383814	3.29635531
Si	-2.83919668	-4.71971652	0.39777337
Si	1.05090598	-4.95680153	2.61698717
Si	2.58340165	3.87283664	0.04143451
Si	-0.73526735	4.99672635	-2.32645026
Si	-3.25330175	1.76086229	-0.08296549
Si	1.72039690	-1.98061772	2.86829387
Si	-3.26421178	-2.38716298	0.14461162
Si	1.16988744	-4.45160607	-2.58881414
Si	0.09782326	-4.00859881	-0.36921773
Si	1.54852157	3.30485113	-3.02651521
Si	0.80026162	2.95982462	1.32162070
O	-0.17604727	-0.46507496	0.28639271
O	2.08650153	0.84785573	-0.41061266
O	1.34500964	2.05874429	2.65312814
O	-1.23118477	-0.06364265	3.07063056
O	3.16642106	5.38560389	0.16968666
O	2.57736481	-1.77119273	1.49740596
O	-0.16607654	1.26207119	-1.80480194
O	-1.30048409	-4.91845737	-0.18881235
O	-0.47986431	-5.03875568	3.29072542

O	0.05555011	3.86360180	-3.45441029
O	-2.80447232	1.03670281	1.33821321
O	-1.06068025	-1.34593234	-2.01376812
O	2.51561440	-2.03229998	-1.04209257
O	-2.79800927	-4.80636386	2.05496535
O	0.98372233	-4.44142114	0.99085857
O	1.93840045	3.73056345	-1.50252622
O	-1.56556428	-2.69286299	2.68187482
O	-1.91382364	-3.72103845	-2.73554338
O	-1.56042125	3.68730926	-1.48753147
O	-0.43410509	3.95320480	1.80540167

Table S1. Coordinates of the relaxed amorphous glass at the PBE/VDPZ level of theory after removal of SiO_4 tetrahedral units and responsible of Q^4 contribution (a=6.719, b=11.546, c=6.731, α=87.81, β=116.49, γ=90.12).

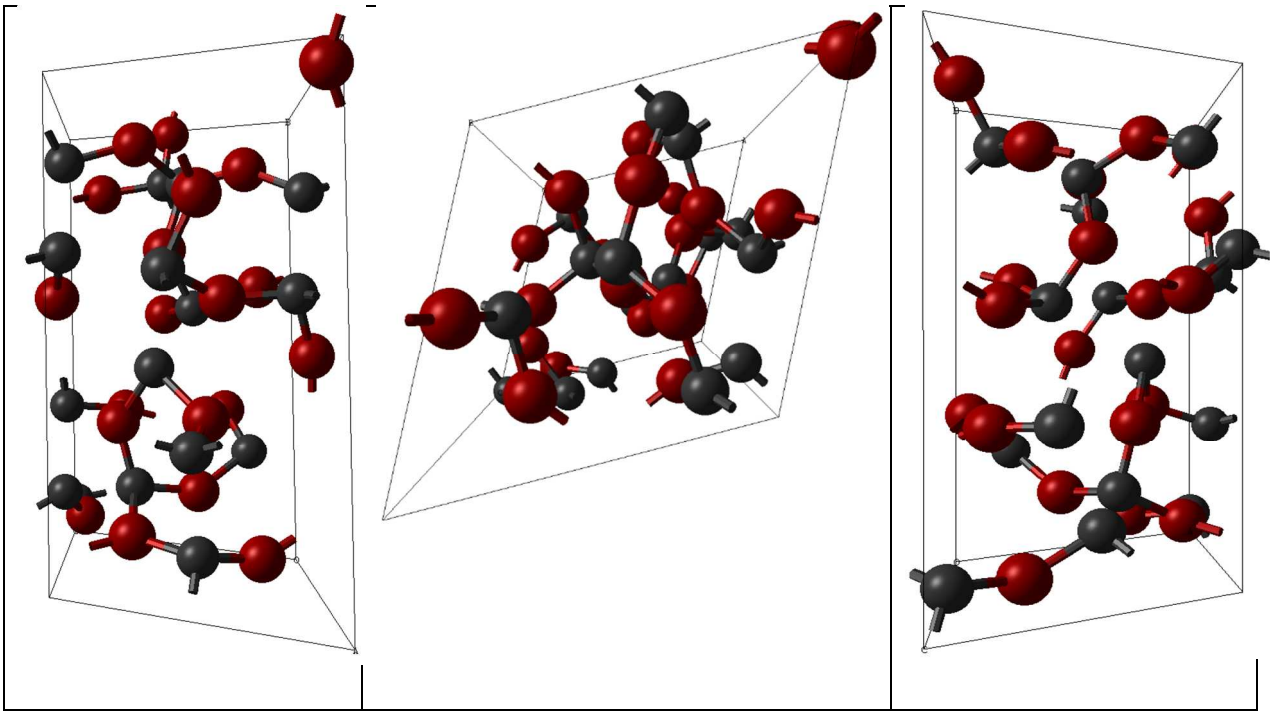

Fig. S1. Lattice views along a (left), b (middle) and c (right) axis of the relaxed amorphous glass supercell.

Si	-0.57601709	1.05021235	0.62150379
Si	-2.464118	2.37872945	-1.32413762
Si	0.90933466	1.02525499	-2.93035466
Si	-1.11323895	-1.88725288	-0.3265971
Si	-0.42586601	-1.78333282	3.50304174
Si	-3.02072029	-4.64750062	0.29185921
Si	0.55444395	-5.56859167	2.4703621
Si	2.45335271	3.3400214	1.13268343
Si	-0.9540649	5.08315201	-2.02937035
Si	-3.53824387	2.27209387	0.76241822
Si	2.24934992	-2.85514178	2.8448546
Si	-3.93407039	-2.50220382	0.22472299
Si	1.18905606	-4.04036078	-2.57142963
Si	-0.12395091	-4.04549671	-0.39159263
Si	1.58923427	3.02847468	-1.97327834
Si	0.80615942	2.13523598	2.29741255
O	-0.1764342	-0.55133098	0.24597266
O	1.51704182	1.11639483	3.45357297
O	2.13547979	0.01537146	-2.49156438
O	2.32951606	4.93889641	1.38297347
O	3.13859762	-2.66428669	1.47703105
O	-0.98049541	1.73314362	-0.83035609
O	-1.61475226	-4.74980126	-0.58766157
O	2.61524088	-4.81080034	-2.43458523
O	0.451674	4.18409786	-2.02032479
O	-2.11871785	1.10307889	1.37110456
O	-1.65558291	-1.7924209	-1.89532364

O	3.47018687	-1.8415448	-0.9788275
O	-2.77370535	-4.66678808	1.9249916
O	0.45308196	-4.53419962	1.05046128
O	2.04059843	2.87903848	-0.40803572
O	1.56371272	-2.42324058	-2.69606295
O	1.73299369	-4.3685647	3.11975439
O	-2.15401474	3.87889396	-1.93422281
O	-0.2994142	3.01834104	3.18117929
O	-1.05331642	5.80585632	-0.52441115
N	-2.37428183	4.80996809	1.46854709
O	-3.41875226	5.28482315	0.87939098
O	-2.13259347	3.4739943	1.24320676
O	-1.65281416	5.41568164	2.25639828
N	3.69297652	0.33497567	1.17000456
O	2.40638363	0.2341736	1.10552655
O	-2.50026922	-1.6996116	0.58476659
O	-0.6800411	0.60829369	-3.21023304
Cu	1.07095606	-1.15369791	1.88893305

Table S2. Coordinates of the relaxed copper-doped amorphous glass supercell at the PBE/VDPZ level of theory by addition of $Cu(NO_3)_2$ to the corrected structure given in Table SI1 (a=8.057, b=12.047, c=6.829, α=100.58, β=117.87, γ=76.66).

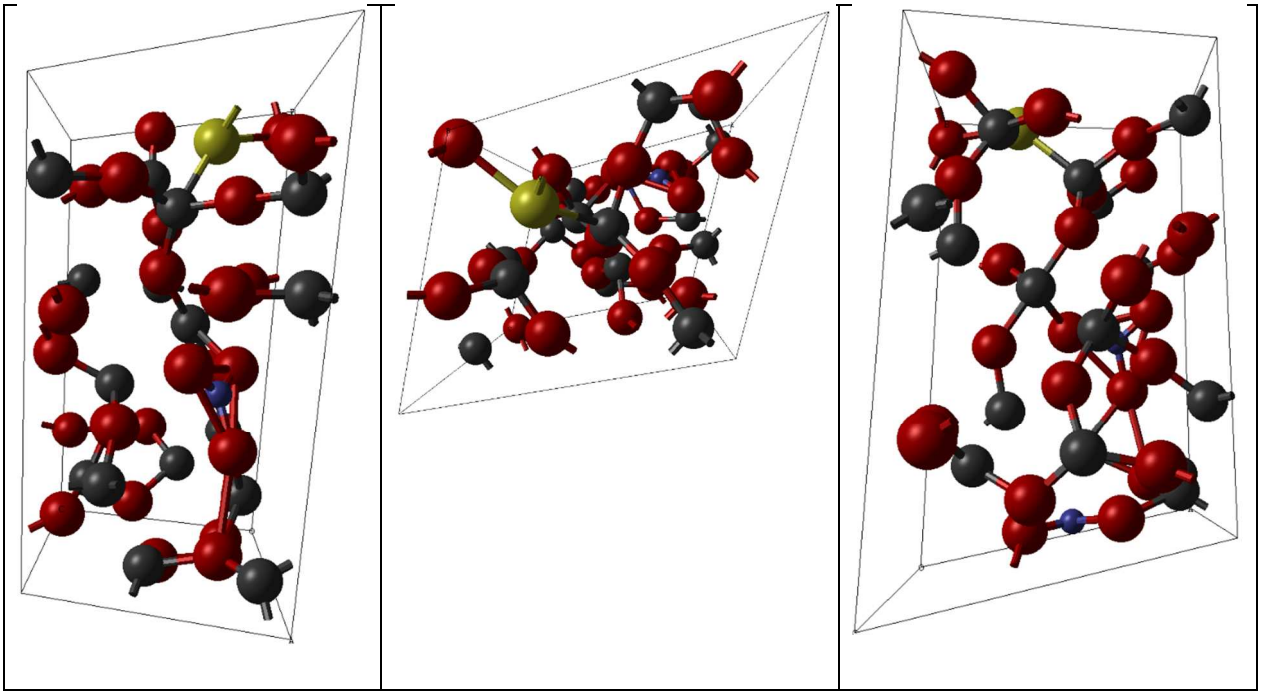

Fig. S2. Lattice views along a (left), b (middle) and c (right) axis of the relaxed copper-doped amorphous glass supercell.