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The effect of NiO on the conductivity of BaZr_{0.5}Ce_{0.3}Y_{0.2}O_{3-δ} based electrolytes

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Table S1

The detailed elemental content of sintered BZCY(Ni)532 ceramics, which were prepared at a temperature of 1600 °C. Note that all results are given in atomic%.

	Spectrum	In stats.	Ni	Y	Zr	Ba	Ce	Total
Grain (bulk)	Spectrum 1	Yes	0.56	8.77	27.47	48.72	14.5	100
	Spectrum 2	Yes	0.33	8.53	27.91	48.58	14.68	100
	Spectrum 3	Yes	0.66	7.55	26.24	50.52	15.02	100
	Spectrum 4	Yes	0.49	8.47	28	48.24	14.99	100
	Spectrum 5	Yes	0.61	9.03	28.48	47.23	14.66	100
	Spectrum 6	Yes	0.35	7.82	28.53	50.41	12.9	100
	Mean			0.5	8.36	27.77	48.96	14.46
Grain boundary	Line Spectrum 7	Yes	0.55	8.04	28.66	48.76	13.99	100
	Line Spectrum 8	Yes	0.69	7.76	28.08	50.51	12.96	100
	Line Spectrum 9	Yes	0.59	8.75	27.13	49.36	14.16	100
	Line Spectrum 10	Yes	0.58	8.51	28.57	49	13.35	100
	Line Spectrum 11	Yes	0.65	8.41	28.52	48.37	14.04	100
	Line Spectrum 12	Yes	0.54	9.03	28.8	47.5	14.12	100
	Line Spectrum 13	Yes	0.4	8.92	28.27	48.37	14.04	100
	Line Spectrum 14	Yes	0.51	8.11	28.12	48.89	14.37	100
	Line Spectrum 15	Yes	0.73	9.06	29.46	48.4	12.35	100
	Line Spectrum 16	Yes	0.64	8.1	28.5	48.96	13.8	100
	Line Spectrum 17	Yes	0.61	7.9	28.37	50.8	12.32	100
	Line Spectrum 18	Yes	0.59	8.45	29.2	48.21	13.55	100
	Line Spectrum 19	Yes	0.83	9.06	29.94	46.51	13.66	100
	Line Spectrum 20	Yes	0.64	9.28	29.5	46.49	14.09	100
	Line Spectrum 21	Yes	0.21	8.96	29.03	47.96	13.84	100
	Line Spectrum 22	Yes	0.88	8.24	29.42	47.36	14.1	100
	Line Spectrum 23	Yes	0.55	8.2	29.4	47.84	14	100
	Line Spectrum 24	Yes	0.52	8.57	29.22	47.54	14.16	100
Mean			0.595	8.52	28.79	48.38	13.72	100
Triangle region	Spectrum 25	Yes	0.67	8.33	28.54	48.43	14.03	100
Total	Mean		0.58	8.47	28.53	48.52	13.91	100

Table S2

The detailed elemental content of sintered BZCY532(Ni) ceramics, which were prepared at a temperature of 1600 °C. Note that all results are given in atomic%.

	Spectrum	In stats.	Ni	Y	Zr	Ba	Ce	Total
Grain (bulk)	Spectrum 1	Yes	0.20	7.81	30.20	46.92	14.86	100
	Spectrum 2	Yes	0.20	7.83	31.49	46.08	14.40	100
	Spectrum 3	Yes	0.30	6.55	25.55	51.04	16.57	100
	Spectrum 4	Yes	0.16	7.32	27.69	49.87	14.96	100
	Spectrum 5	Yes	0.41	6.50	28.47	49.16	15.46	100
	Spectrum 6	Yes	0.38	6.90	28.18	49.05	15.48	100
	Mean			0.275	7.15	28.60	48.69	15.29
Grain boundary	Line Spectrum 7	Yes	0.29	7.72	28.36	49.12	14.50	100
	Line Spectrum 8	Yes	0.15	7.84	28.83	48.14	15.03	100
	Line Spectrum 9	Yes	0.10	7.18	28.86	48.62	15.23	100
	Line Spectrum 10	Yes	0.43	7.32	28.55	48.51	15.19	100
	Line Spectrum 11	Yes	0.50	7.64	26.47	50.28	15.11	100
	Line Spectrum 12	Yes	1.66	7.34	23.88	51.11	16.02	100
	Line Spectrum 13	Yes	0.05	6.37	26.50	50.51	16.67	100
	Line Spectrum 14	Yes	0.17	7.07	26.37	51.16	15.23	100
	Line Spectrum 15	Yes	0.50	7.54	27.09	51.20	14.67	100
	Line Spectrum 16	Yes	1.71	6.63	27.14	49.19	15.34	100
	Line Spectrum 17	Yes	1.31	6.86	27.17	48.92	15.74	100
	Line Spectrum 18	Yes	0.28	8.04	27.41	48.32	15.95	100
Triangle region	Line Spectrum 19	Yes	0.01	6.47	26.78	51.02	15.74	100
	Line Spectrum 20	Yes	0.27	5.63	27.94	50.13	16.03	100
	Line Spectrum 21	Yes	0.38	6.62	26.91	50.54	15.55	100
	Line Spectrum 22	Yes	0.62	6.40	26.91	50.62	15.49	100
	Line Spectrum 23	Yes	1.01	6.96	27.20	49.63	15.20	100
	Line Spectrum 24	Yes	0.78	6.92	25.89	51.09	15.33	100
	Mean			0.57	7.03	27.13	49.90	15.45
Total	Mean		0.54	7.08	27.50	49.53	15.39	100

