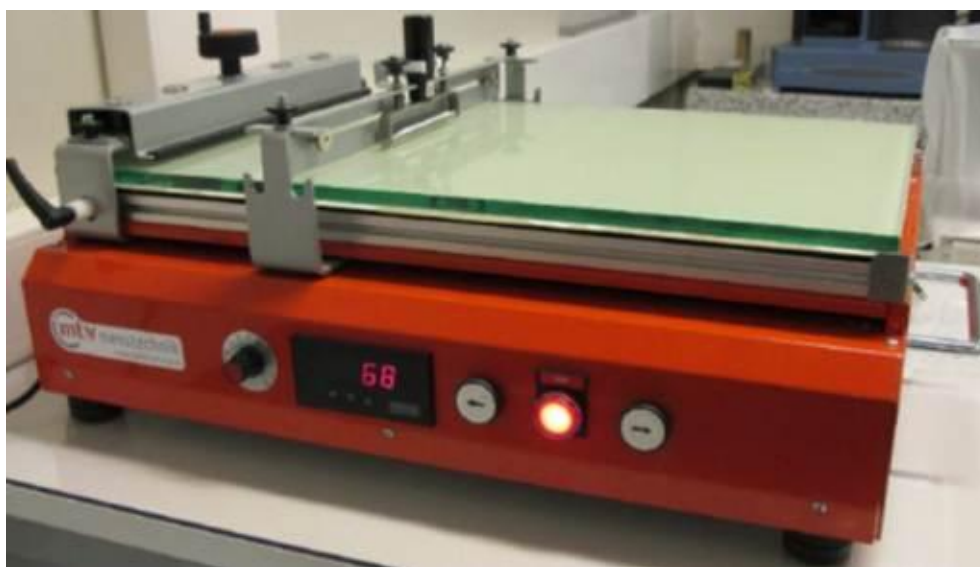


Supplementary Materials for the article "Solution processable electrode materials for a heat sensitive piezoelectric thin film sensor Synthetic Metals"



a)



b)

Figure S1. a) Rod-coater and b) flexographic printer equipment.

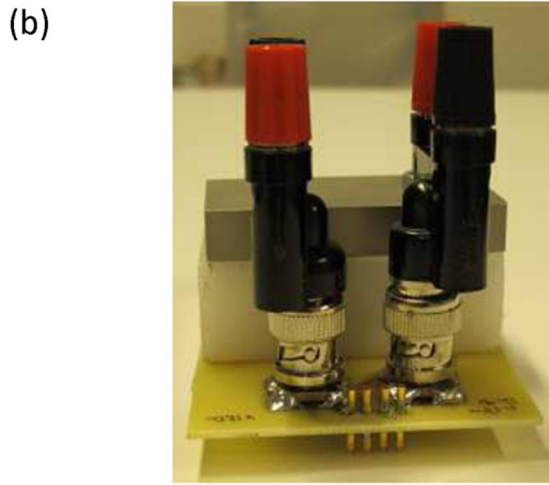
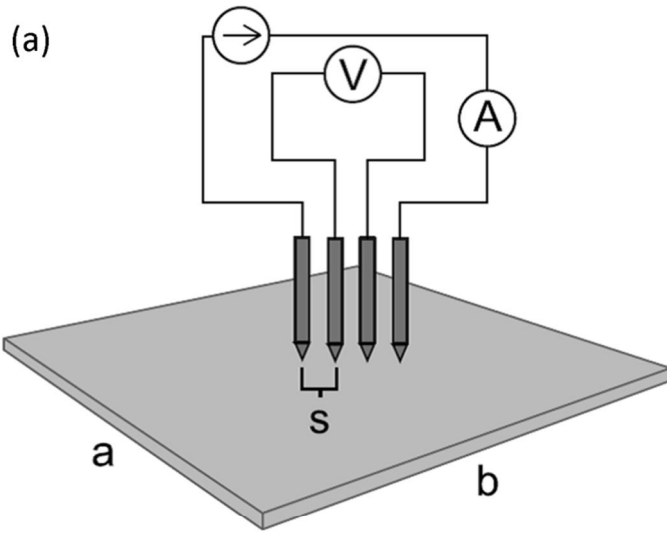


Figure S2. a) The principle of a four-probe measurement of the sheet resistance and b) a four-point probe setup used in the measurements. Probe spacing  $s = 3$  mm.

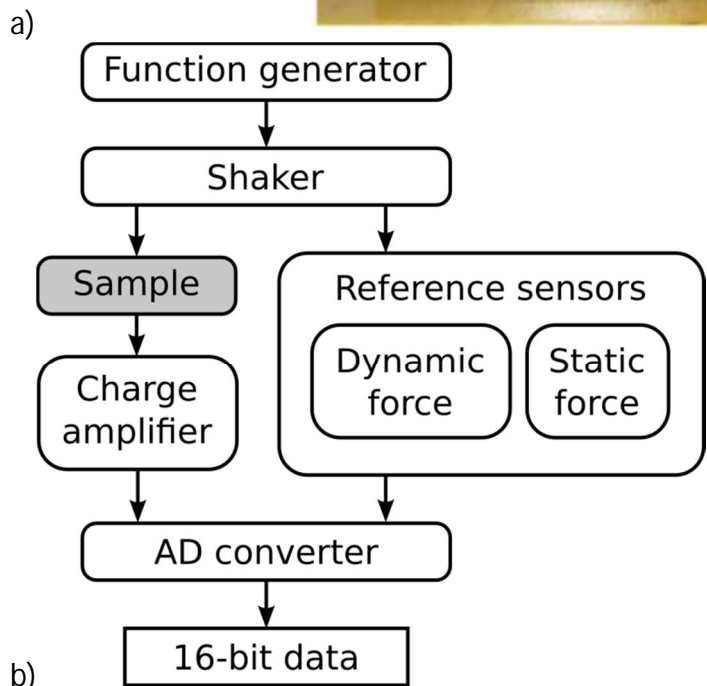
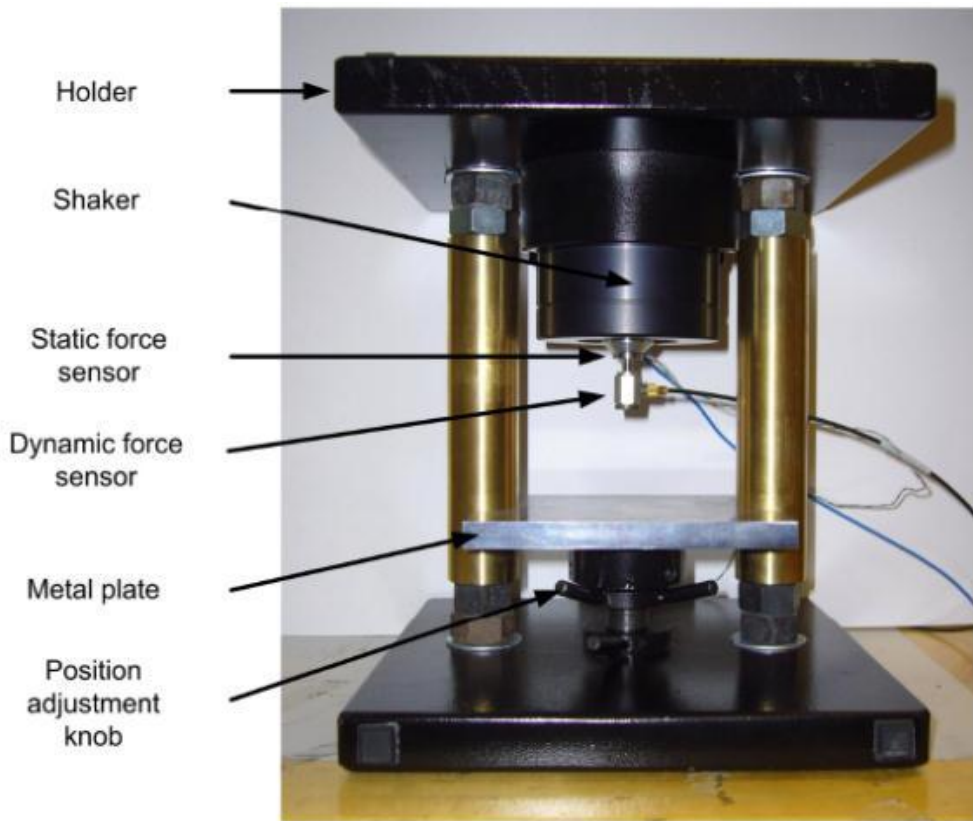


Figure S3. a) Sensor sensitivity measurement setup. b) schematic view of the measurement setup.

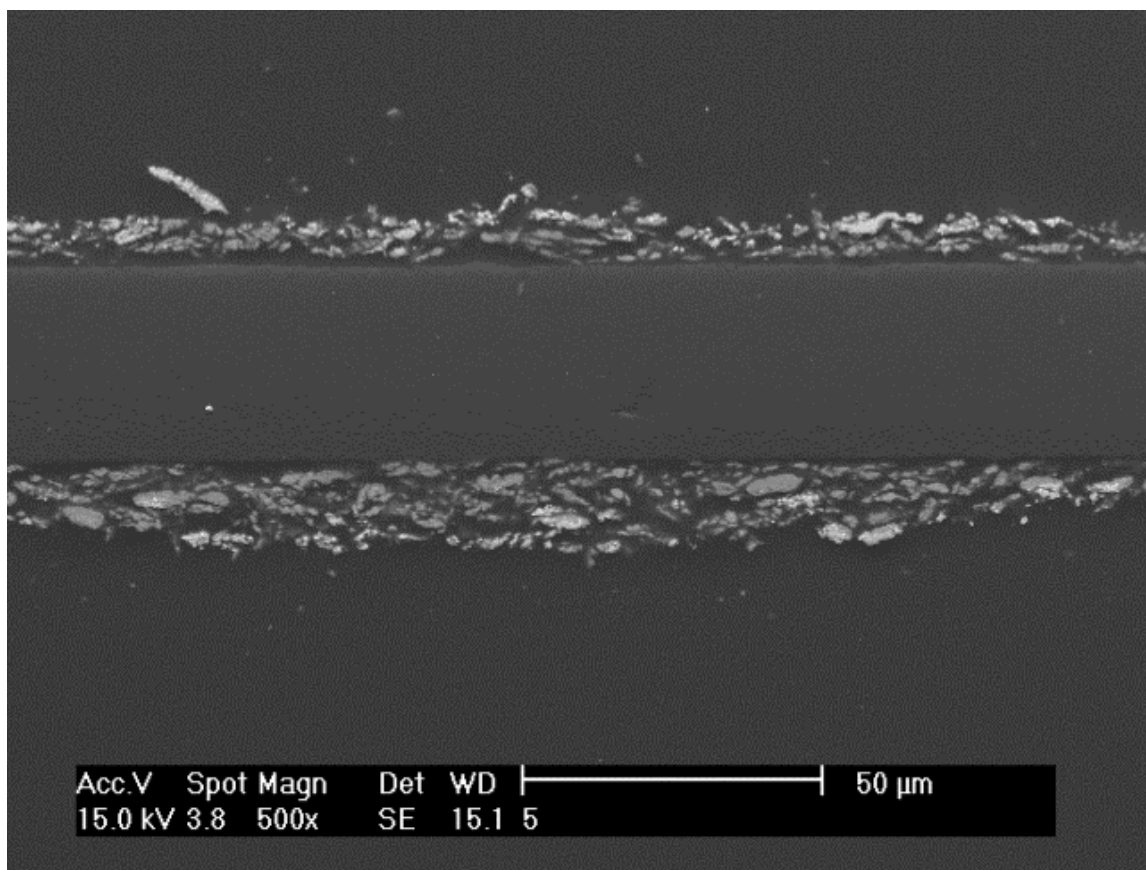


Figure S4. Cross-sectional SEM-image of silver flake ink printed on both sides of PVDF substrate.

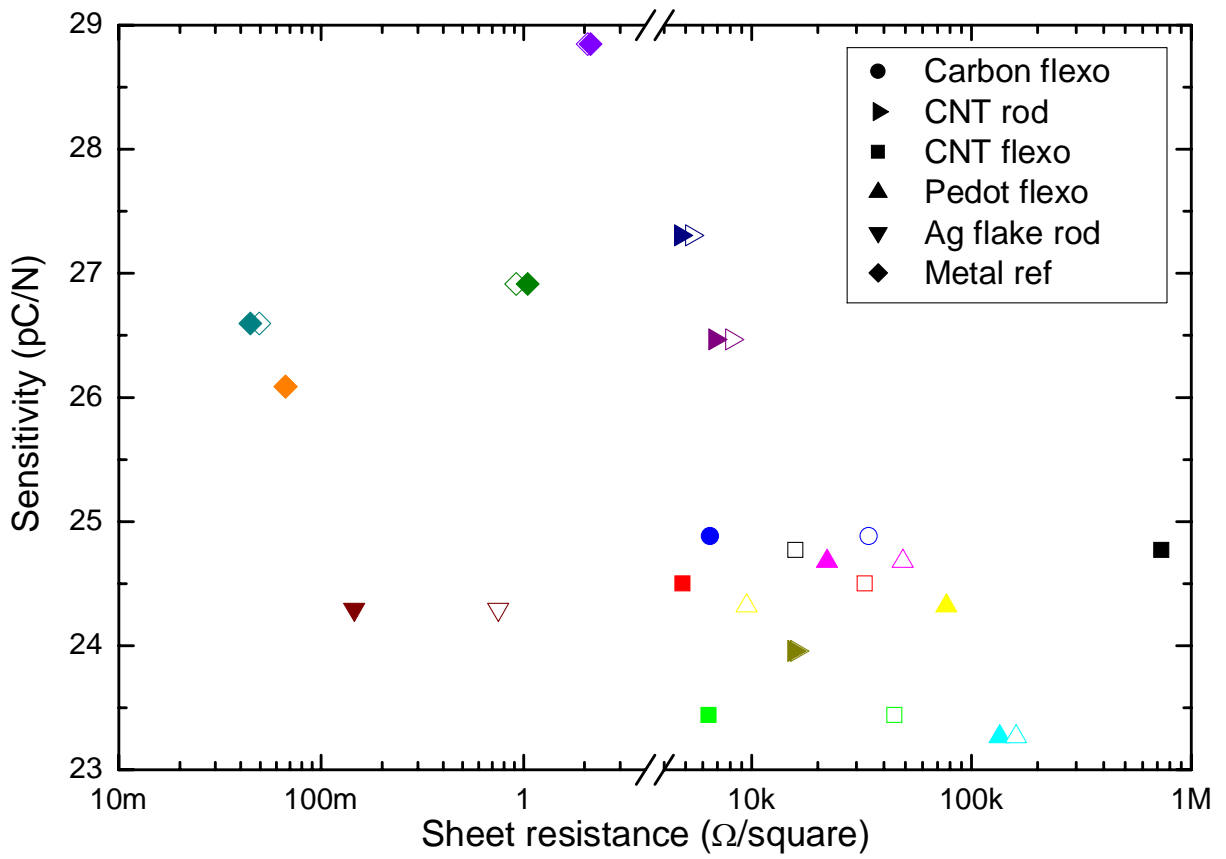


Figure S5. Plot of sensor sensitivity versus sheet resistance of the electrodes. Closed and open shapes refer to the sheet resistance measured from electrode-1 and electrode-2, respectively.

Table S1. Example of the sensitivity data measured from the sample “CNT-5” in Table 4 in the paper.

Measurement position (side-point)	Static force (N)	Dynamic force (N)	Dynamic Sensitivity (pC/N)	Signal-to-noise ratio (dB)
1-1	3.02	1.28	25.14	20.49
1-2	3.01	1.30	24.79	31.20
1-3	3.08	1.25	25.66	29.46
1-4	3.04	1.31	24.09	27.61
1-5	3.01	1.32	25.35	32.13
1-6	3.06	1.32	24.93	31.85
1-7	3.05	1.32	23.63	28.77
1-8	2.99	1.32	24.24	31.94
1-9	3.09	1.32	23.72	25.25
2-1	2.97	1.29	23.70	28.65
2-2	3.11	1.30	23.18	31.32
2-3	3.01	1.31	24.87	35.17
2-4	2.99	1.33	24.80	35.24
2-5	3.14	1.31	25.11	14.48
2-6	3.02	1.31	25.26	32.00
2-7	3.03	1.31	22.94	18.90
2-8	3.09	1.33	24.94	23.87
2-9	3.05	1.29	24.66	15.00
Average	3.04	1.31	24.50	27.41
STD	0.05	0.02	0.79	6.42

As an example of printing resolution and quality the flexo-printed test structures on PET substrate is shown in the Fig. S6. The narrowest lines are 200  $\mu\text{m}$  and thick lines 1 mm wide. This test shows that at least as small as 200  $\mu\text{m}$  lines can be obtained. The yield and resolution can be increased by further optimisation of the ink, substrate and printing parameters.

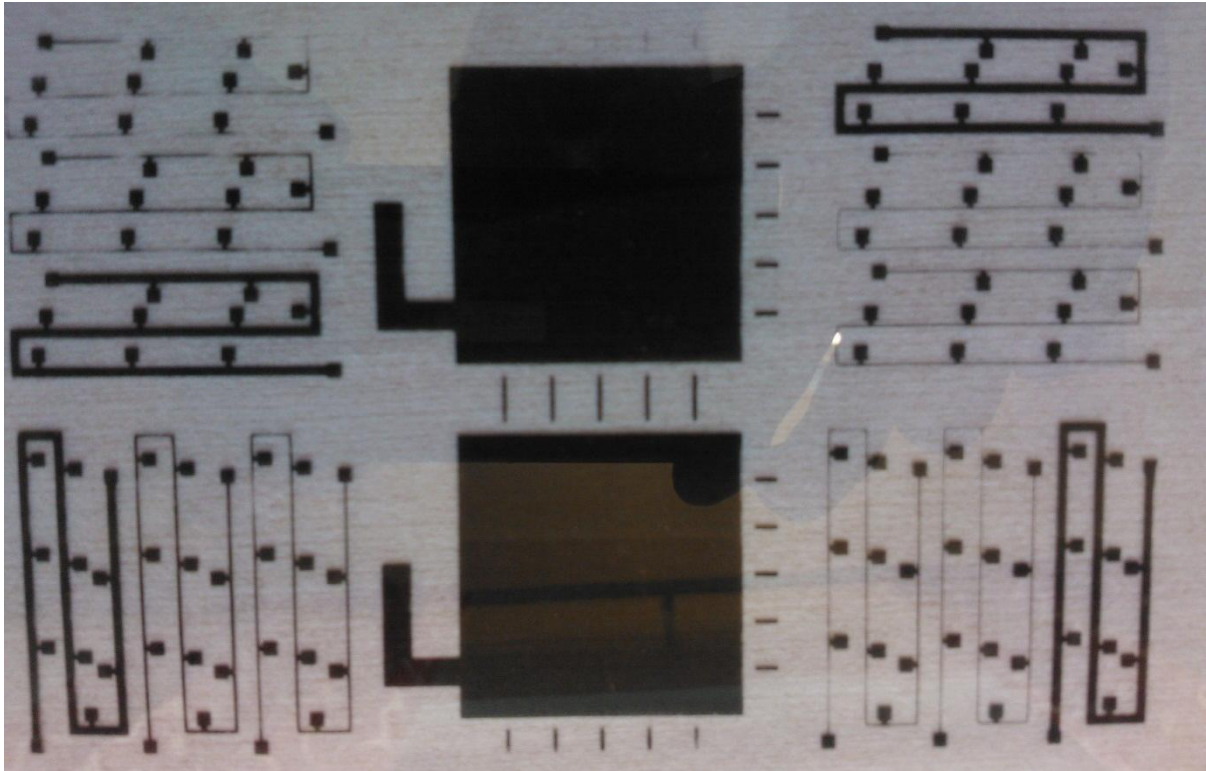


Figure S6. Photo of flexo-printed carbon ink test structures on PET substrate.

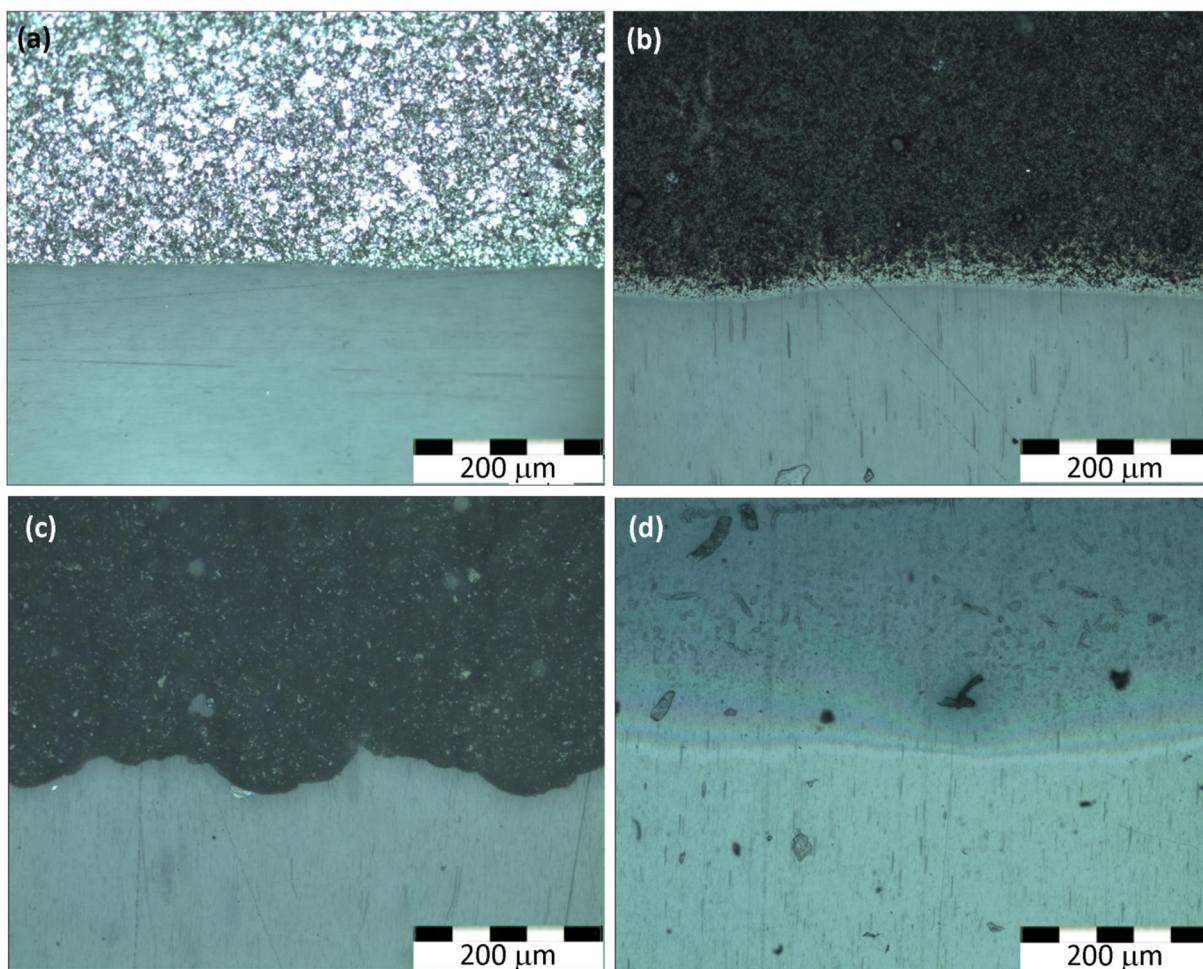


Figure S7. Micrographs of edges of flexo-printed sensor electrode structures in the cases of a) Ag-flake, b) CNT:CMC, c) Carbon and d) PEDOT:PSS ink. It can be observed that the edges are quite smooth in most cases.