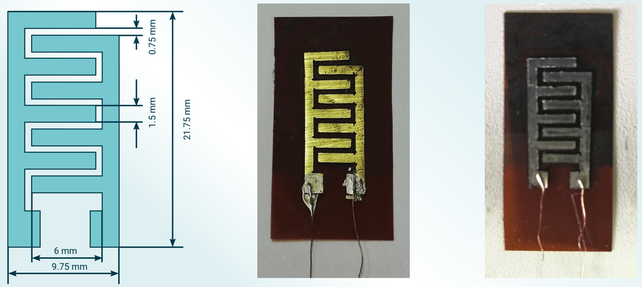
FLEXIBLE SENSORS BASED ON TWO CONDUCTIVE ELECTRODES AND MWCNTS COATING FOR EFFICIENT PH VALUE MEASUREMENT

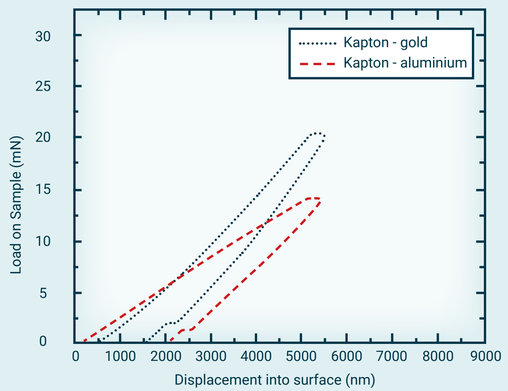
In this work, we present pH sensor constructed as follows:
(a) cost-effective foil as flexible (i. e. mechanically bendable) substrate; (b) interdigitated capacitive (IDC) structure realized using two conductive materials gold (Au) and aluminum (Al); and (c) sensing layer made from carbon nanotubes coating on the top of IDC structure.

The same IDC design has been used to manufacture two types of sensors. The sensors have been fabricated using cutting method with two types of conductive materials for electrodes in IDC structure. Both materials, Al and Au are excellent electrical conductors.

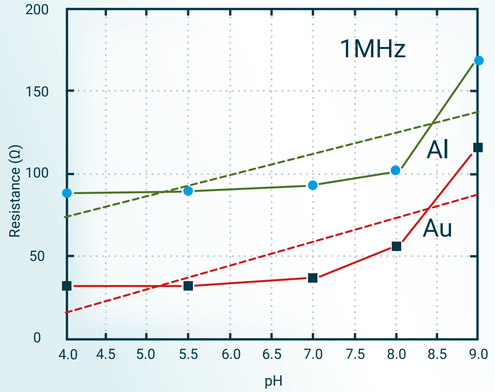
Design of the LC sensor



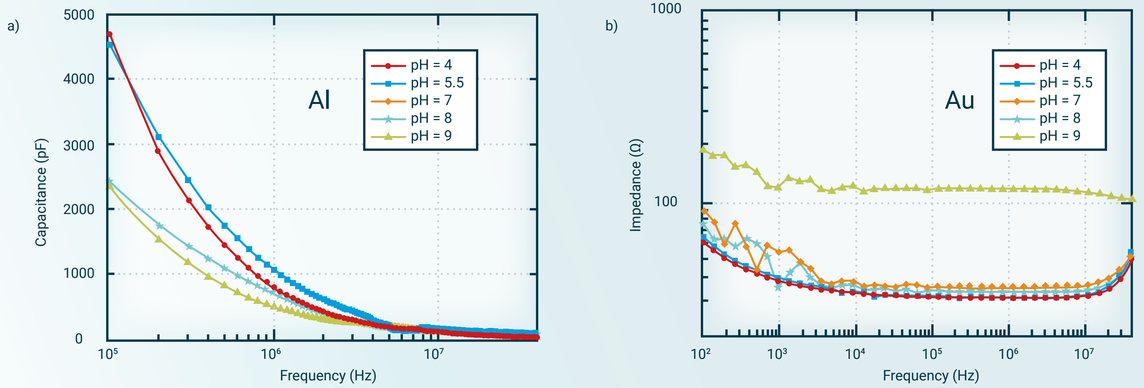
Load-displacement curves of sensors on Kapton film.



Resistance as a function of pH value of solution for sensors with Al and Au electrodes at 1 MHz, including linear fit (dashed lines).



(a) Capacitance as a function of frequency and pH value as parameter for Al sensor, (b) Impedance as a function of frequency and pH value as parameter for Au sensor.



G. Stojanović, T. Kojić, M. Radovanović, D. Vasiljević, S. Panić, V. Srdić, J. Cvejić, „Flexible sensors based on two conductive electrodes and MWCNTs coating for efficient pH value measurement“, *Journal of Alloys and Compounds* (IF: 3.779), vol. 794, pp. 76-83, 2019, https://doi.org/10.1016/j.jallcom.2019.04.243.