Combining Impedance Spectroscopy and Information Visualization Methods to Optimize the Detection of Carbendazim Using Layer-by-Layer Films

Leonardo Negri Furini[1,*], José Diego Fernandes[2], Douglas Henrique Vieira[2], Luis Fernando do Carmo Morato[2], Neri Alves[2] and Carlos José Leopoldo Constantino[2]

[1] Department of Physics, Federal University of Santa Catarina (UFSC), , Florianópolis 88040-001, SC, Brazil
[2] Physics Department, Faculty of Science and Technology (FCT), São Paulo State University (UNESP), Presidente Prudente 19060-900, SP, Brazil
* Correspondence: leonardo.furini@ufsc.br; Tel.: +55-48-3721-2869

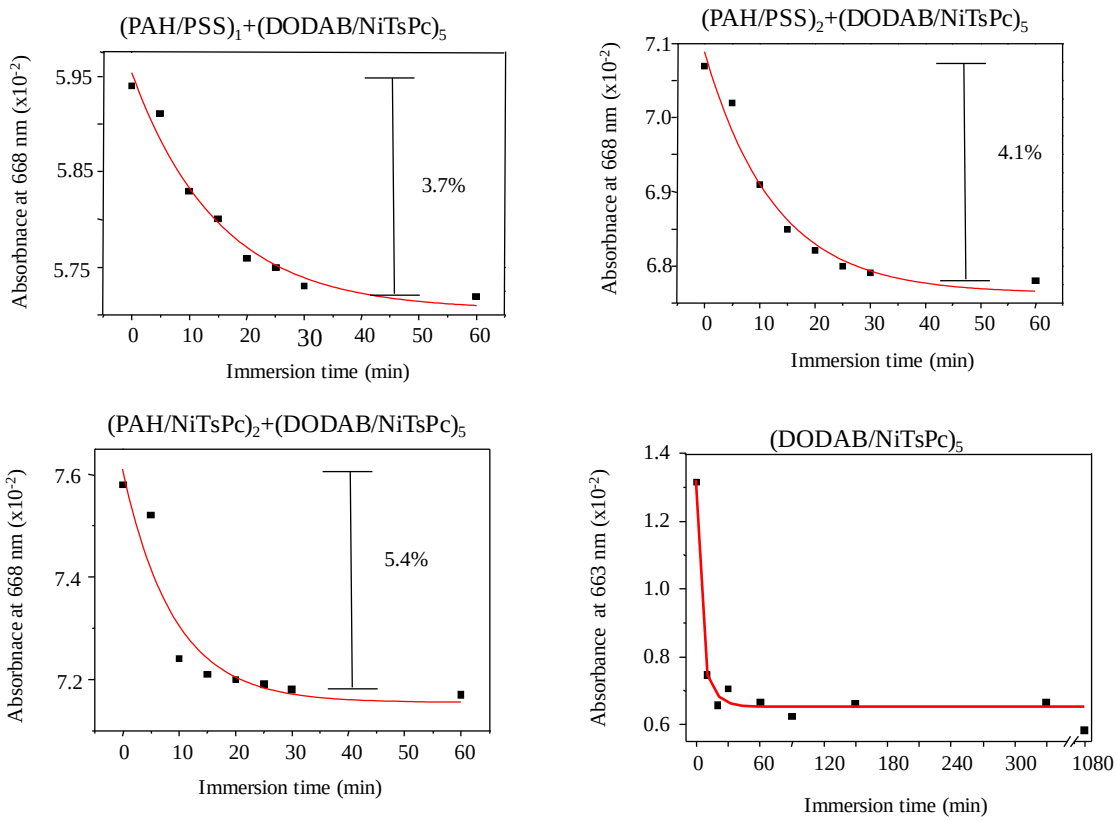

Figure S1: absorbance at fixed wavelength for LbL films on glass.

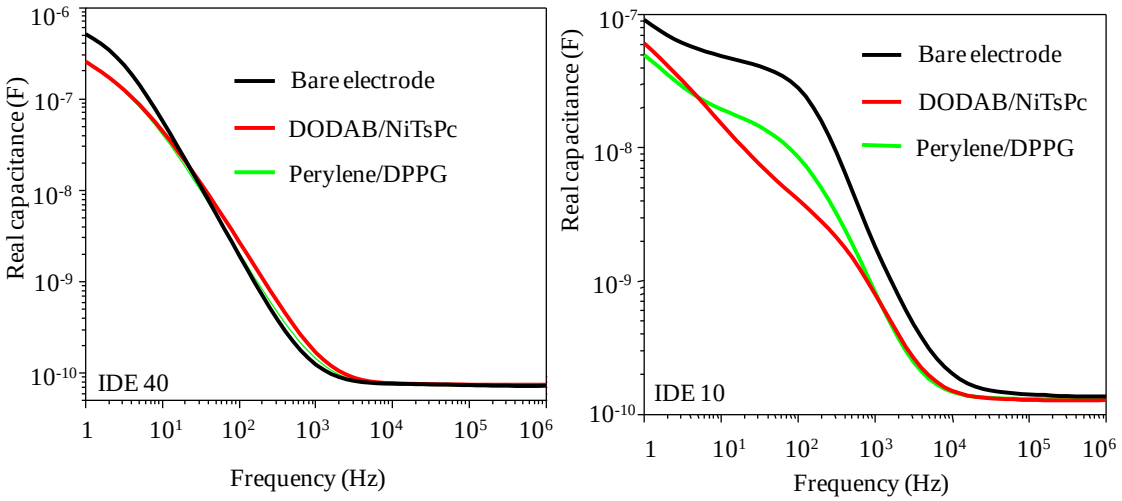

Figure S2: capacitance curves of sensing units $(DODAB/NiTsPc)_5$, $(Perylene/DPPG)_5$ and bare electrode in ultrapure water. IDE 40 (left) and IDE 10 (right).

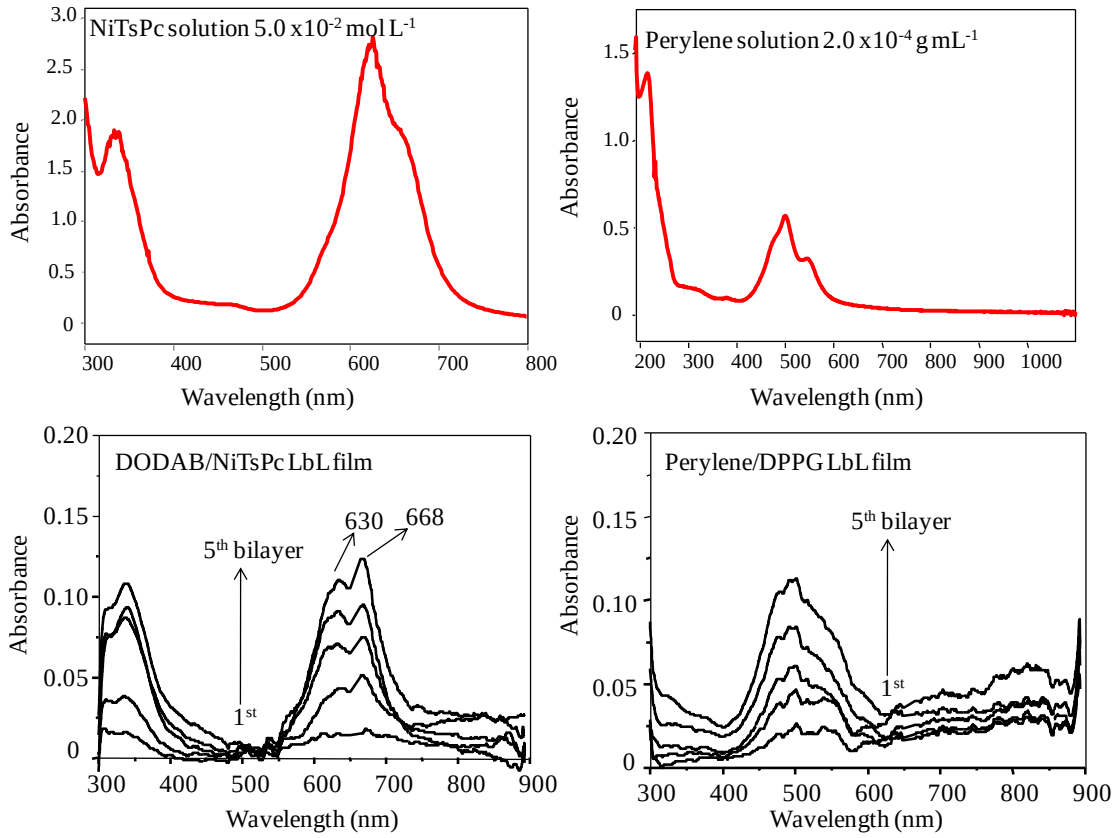

Figure S3: UV-Vis absorption spectra of NiTsPc and perylene in solution (top) and the smoothed (percentile filter) UV-Vis absorption spectra of DODAB/NiTsPc and Perylene/DPPG LbL films recorded every bilayer (bottom).

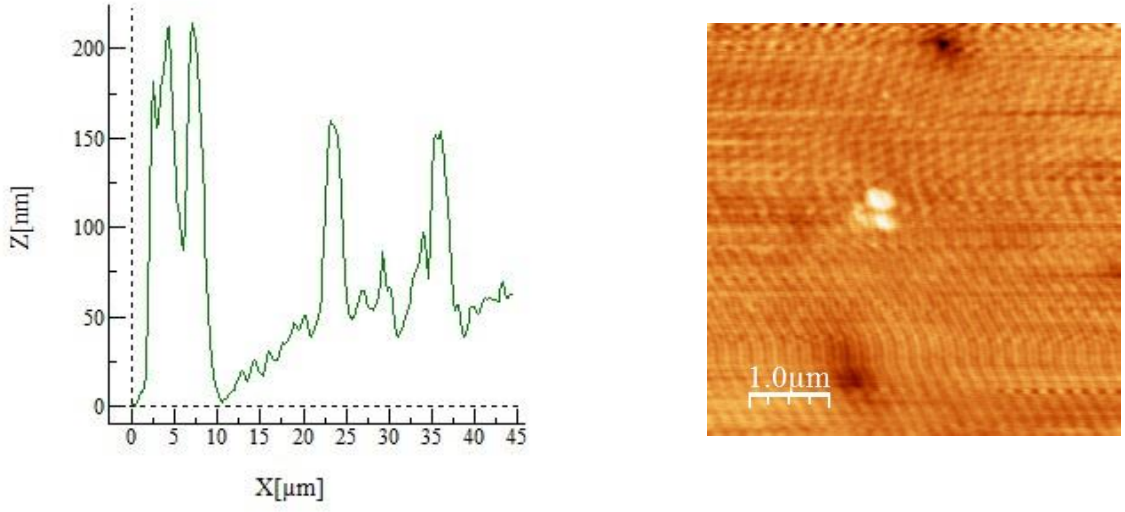

Figure S4: profile of AFM topography of 50 µm x 50 µm area for $(DODAB/NiTsPc)_5$ LbL film (left). AFM topography of glass slide annealed at 600 °C for 2h (right).

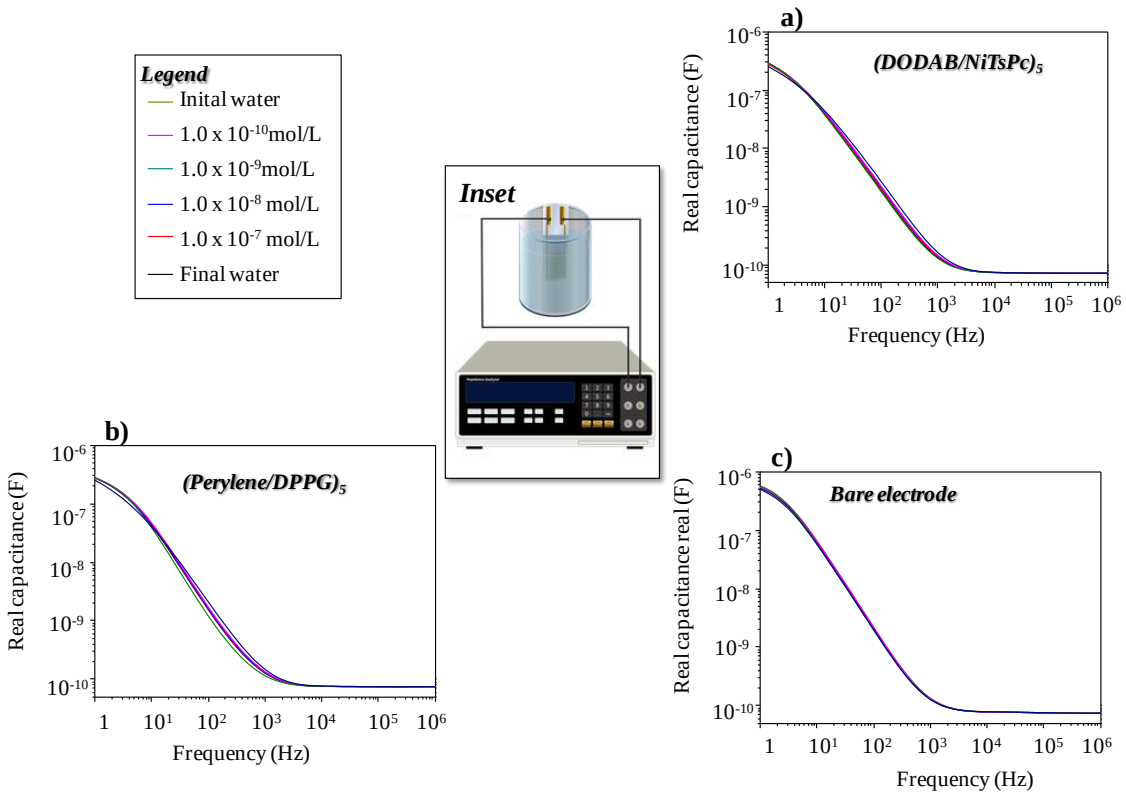

Figure S5: real capacitance vs. frequency for all sensing unitsin ultrapure water and MBC solutions. IDE 40.

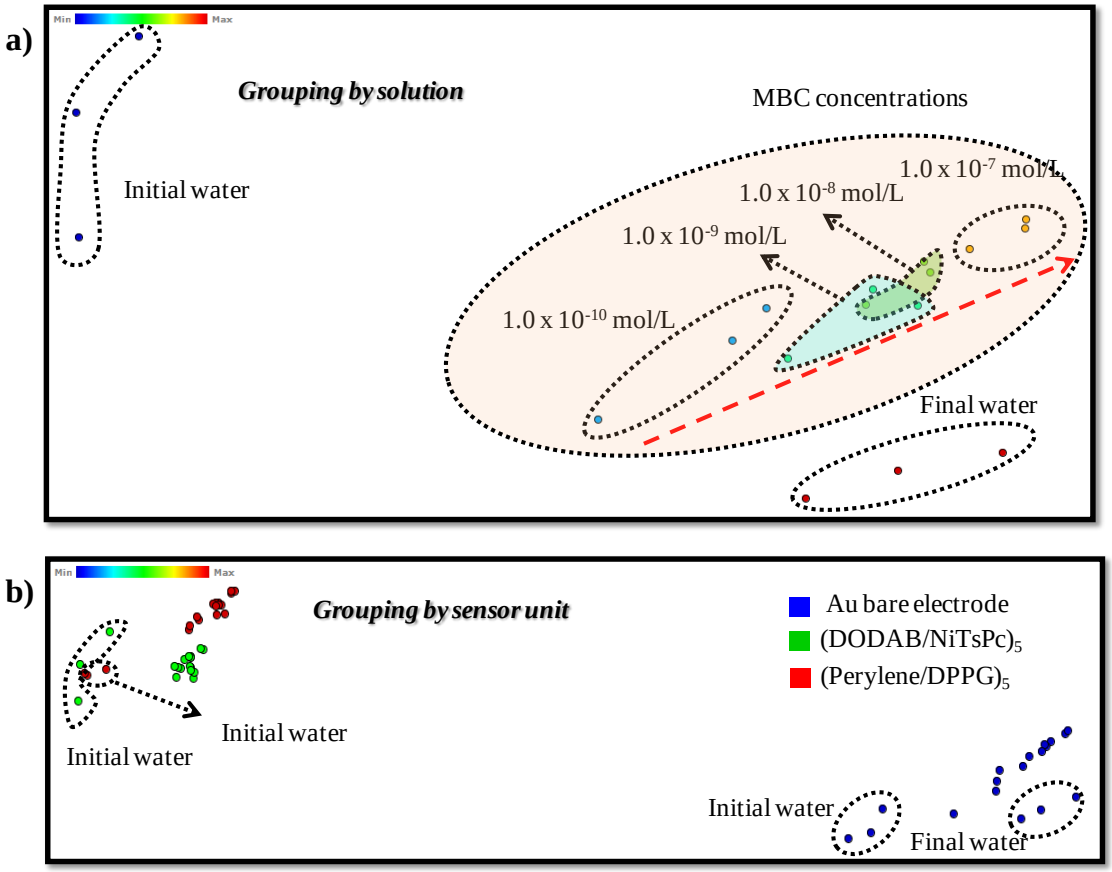

Figure S6: IDMAP projection from capacitance data a) of all sensing units combined, grouping by solution. b) IDMAP projection grouping by sensing unit. IDE 40.