Supplementary Material for Application of a low-cost fluorescence detector for 3D printed lab on a chip microdevices

Mathias Stahl Kavai [1] and José Alberto Fracassi da Silva [1,2,*]

[1] Institute of Chemistry, State University of Campinas—UNICAMP, Campinas 13083-862, SP, Brazil; m222416@dac.unicamp.br
[2] National Institute of Science and Technology in Bioanalytics Lauro Kubota—INCTBio-LK, Institute of Chemistry, State University of Campinas—UNICAMP, Campinas 13083-862, SP, Brazil
* Correspondence: author: fracassi@unicamp.br

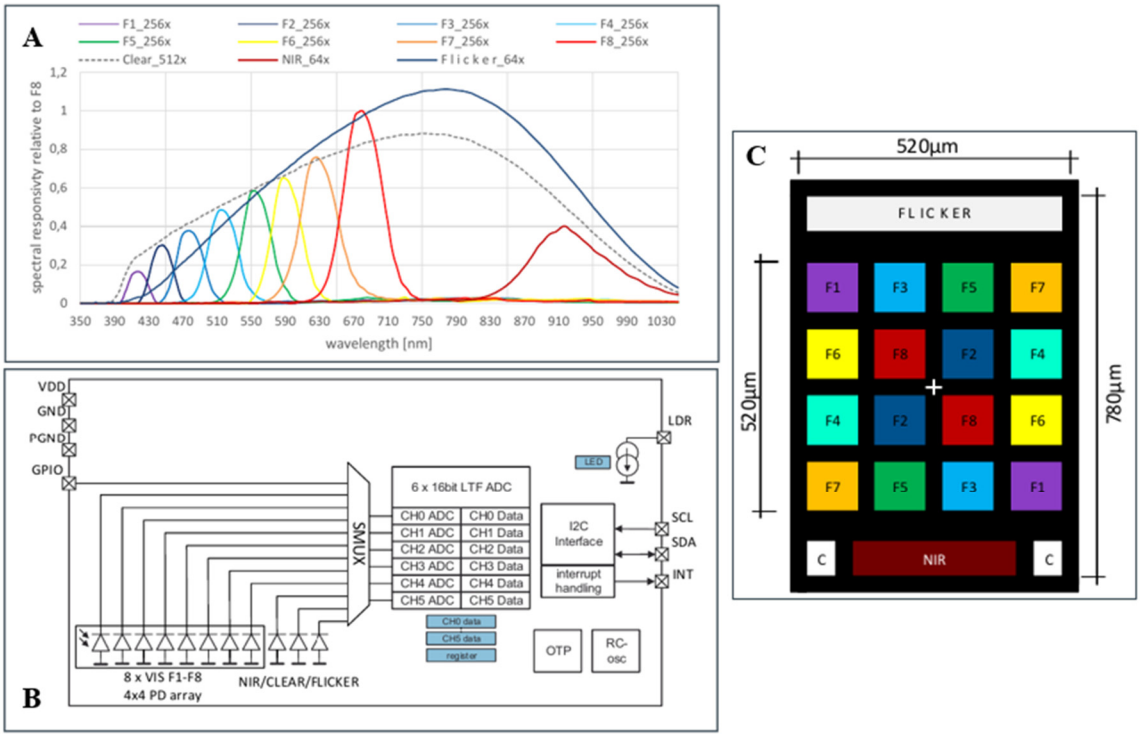


Figure S1.1 – **A**: Spectral responsivity for all channels normalized to F8, **B**: simplified block diagram for the AS7341 internal architecture and **C:** photodiode array configuration [1].

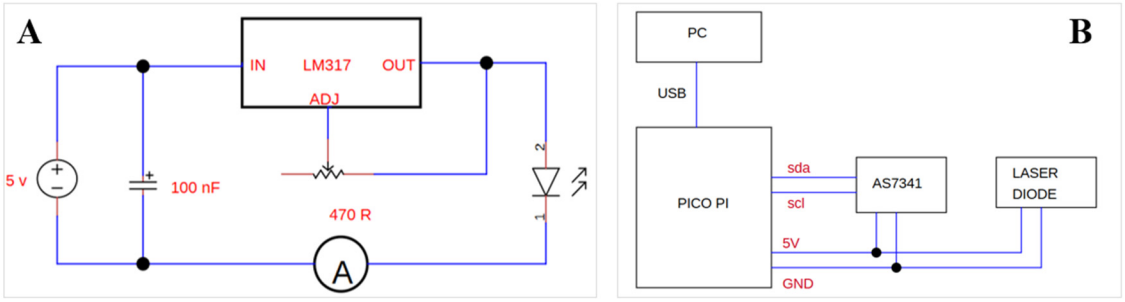


Figure S1.2 – A: Electrical schematic of the current source for the LED driver in the static measurement system and B: block diagram of the electronic components in CE application.

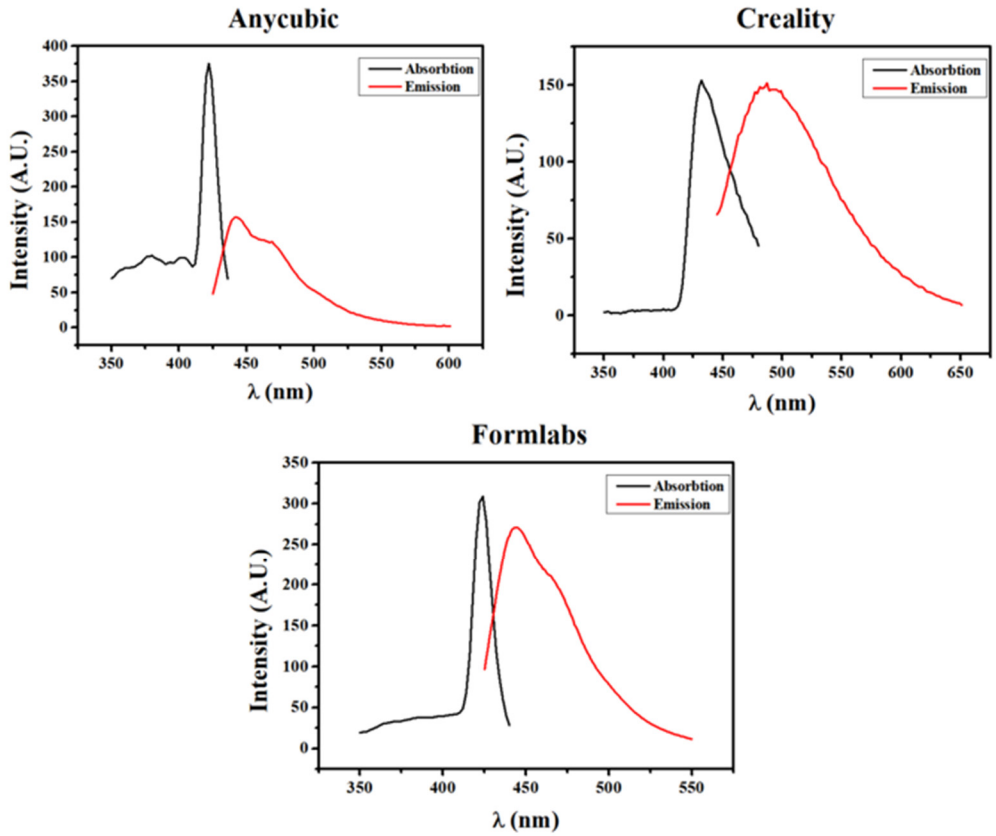


Figure S1.3 – Fluorescence spectra recorded for different commercial resins, obtained with a Cay Eclipse Spectrofluorometer for cuvettes filled with degassed and cured resin. This autofluorescence for these resins limits probes which can be used for 3D printed devices. Since the resin absorbs around 420 nm, the fluorescent probes must have an excitation wavelength higher than 420 nm for the Anycubic and Formlabs resins in order to avoid light absorption from the resin.

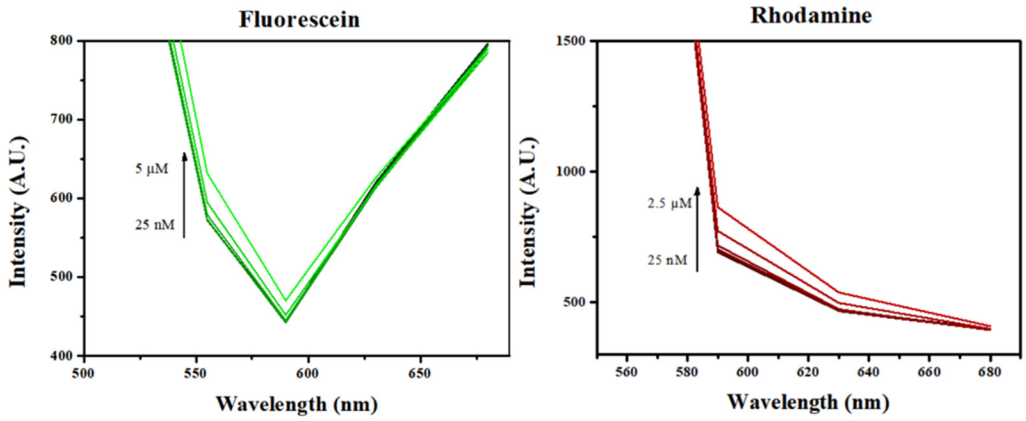


Figure S1.4 – Full spectrum for fluorescein and rhodamine B recorded on the multispectral sensor for each concentration.

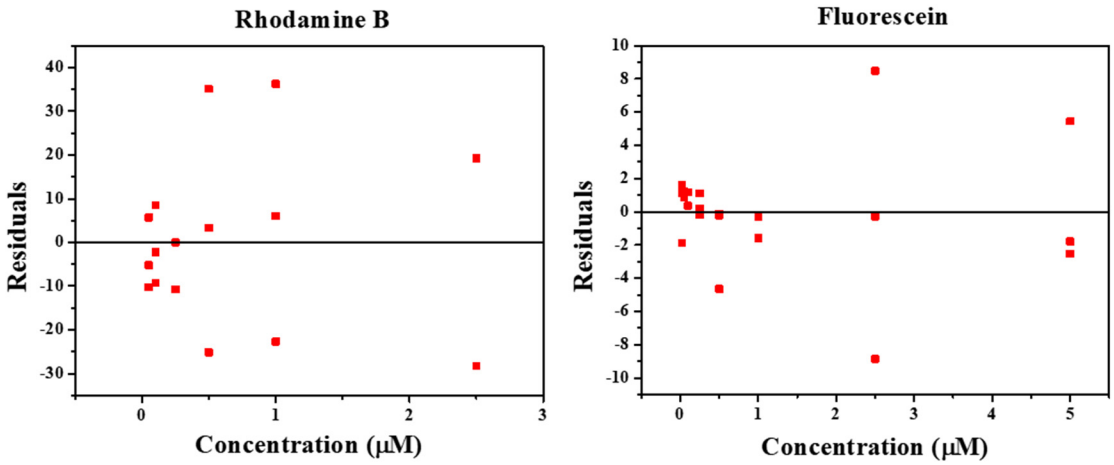


Figure S1.5 – Residual plots for the data presented in figure 2.

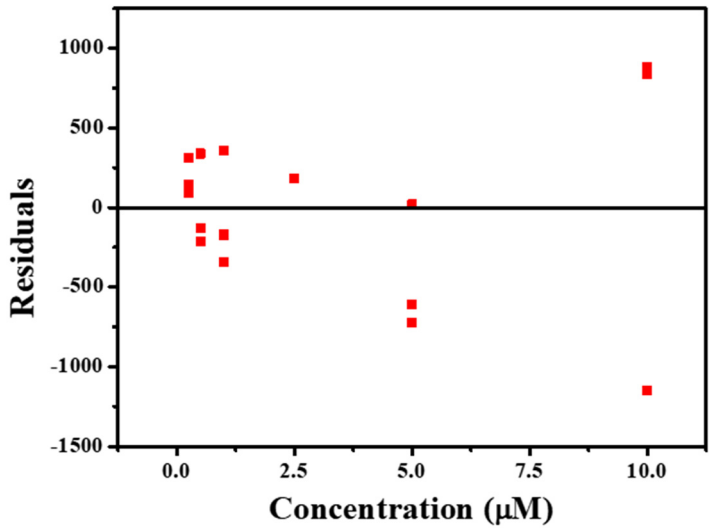


Figure S1.6 - Residual plots for the analytical curves represented in figure 3b.

References

[1] ams OSRAM, AS7341 – 11-Channel Spectral Color Sensor, (n.d.). ams-osram.com/products/sensor-solutions/ambient-light-color-spectral-proximity-sensors/ams-as7341-11-channel-spectral-color-sensor (accessed November 20, 2024).