

A. TIXIER-MITA LAB.

Multi-modal Bio-sensing Micro-devices



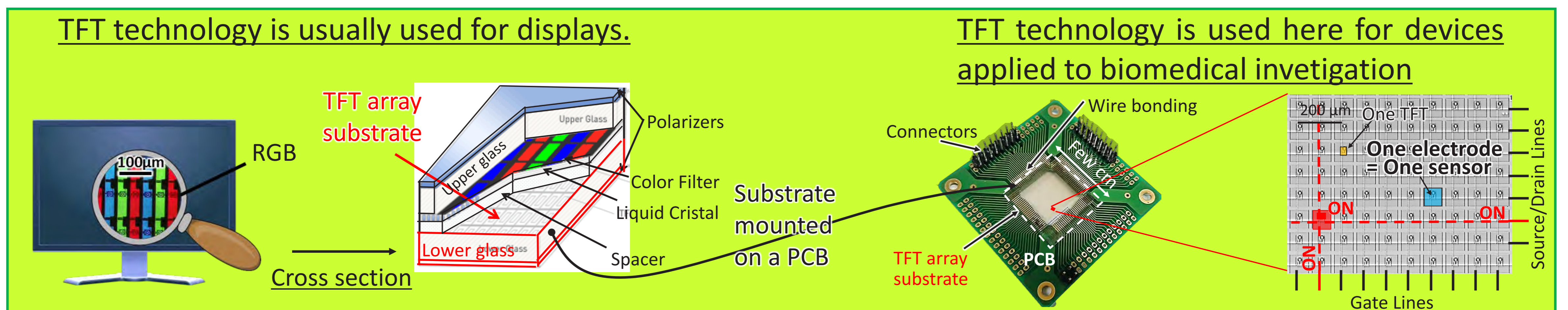
Centre for Interdisciplinary Research on Micro-Nano Methods (CIRMM)
LIMMS/CNRS-IIS (IRL2820) International Collaborative Research Center

Integrated MEMS/NEMS technology

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Information in biological systems, like the neuro-cardiac system, is essentially coded in a multi-modal way through electrical and various bio-molecules signals. For the investigation of that information, multi-modal sensing tools is then needed. Our laboratory is developing **multi-modal bio-sensing platforms**, which integrate different sensing techniques, for in-vitro biological cells and tissue investigations. **We target real-time and high resolution sensing** to study cell culture and cell-cell interactions and communication. The platforms are mainly based on Thin-film-Transistor (TFT) technology to realize integrated array of sensors.



Amperometry of tyramine versus concentration

Concentration ($\times 10^{-6}$ M)	Current density (A/m)
10	0.02
100	0.2
1000	2.0

Albumin sensor

Time (s)	Impedance magnitude (arb.)
0	1.0
10	1.0
20	1.0
30	1.0
40	1.0
50	1.0
60	1.0
70	1.0
80	1.0
90	1.0
100	1.0
110	1.0
120	1.0
130	1.0
140	1.0
150	1.0
160	1.0
170	1.0
180	1.0
190	1.0
200	1.0
210	1.0
220	1.0
230	1.0
240	1.0
250	1.0
260	1.0
270	1.0
280	1.0
290	1.0
300	1.0
310	1.0
320	1.0
330	1.0
340	1.0
350	1.0
360	1.0
370	1.0
380	1.0
390	1.0
400	1.0
410	1.0
420	1.0
430	1.0
440	1.0
450	1.0
460	1.0
470	1.0
480	1.0
490	1.0
500	1.0

