

Cartographie de potentiels sur des nano-fils d'argent



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Réseaux de nano-fils d'argent

- Utilisation pour électrode transparente

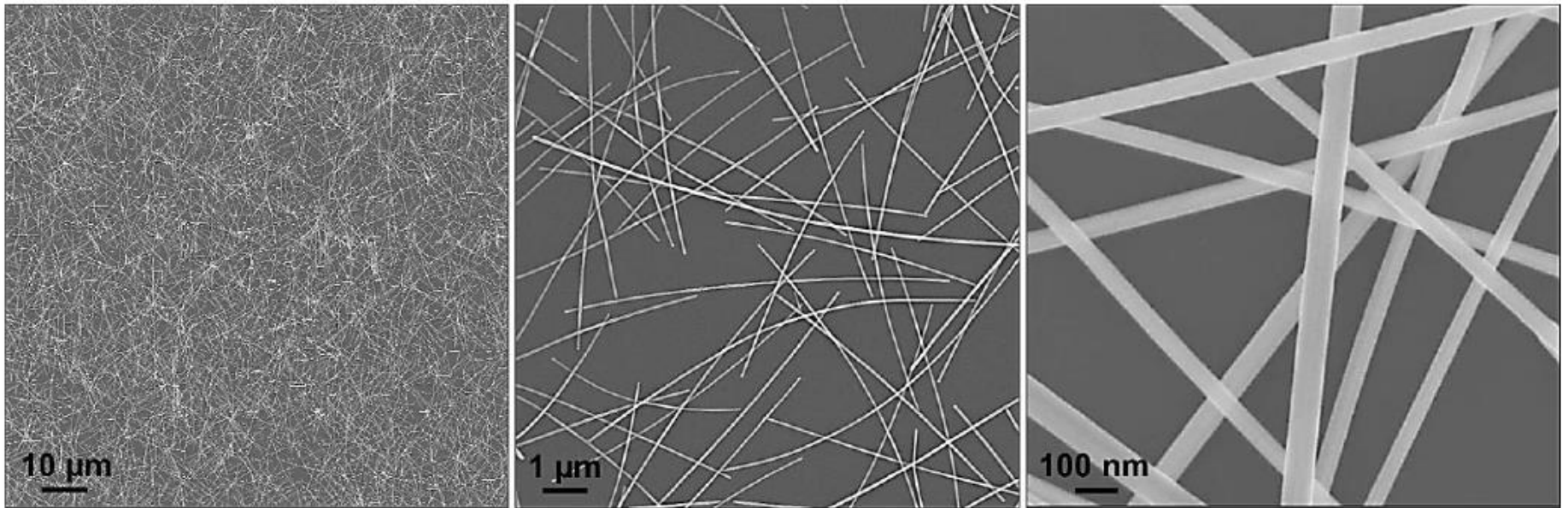
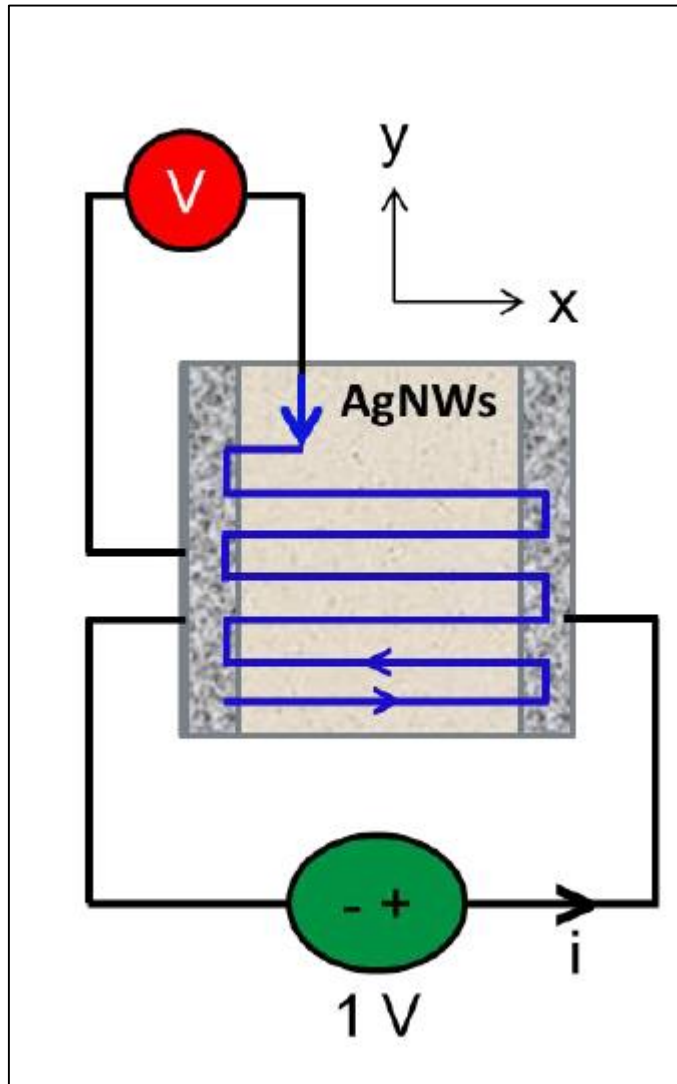


Figure 14. SEM images of AgNWs synthesized at CEA-Liten, and deposited on glass by spray-coating. Their average diameter and length are 60 nm and 10 μm , respectively.

Ref: Thèse de Thomas SANNICOLO (LMGP – CEA), 30 octobre 2017

Cartographie des potentiels



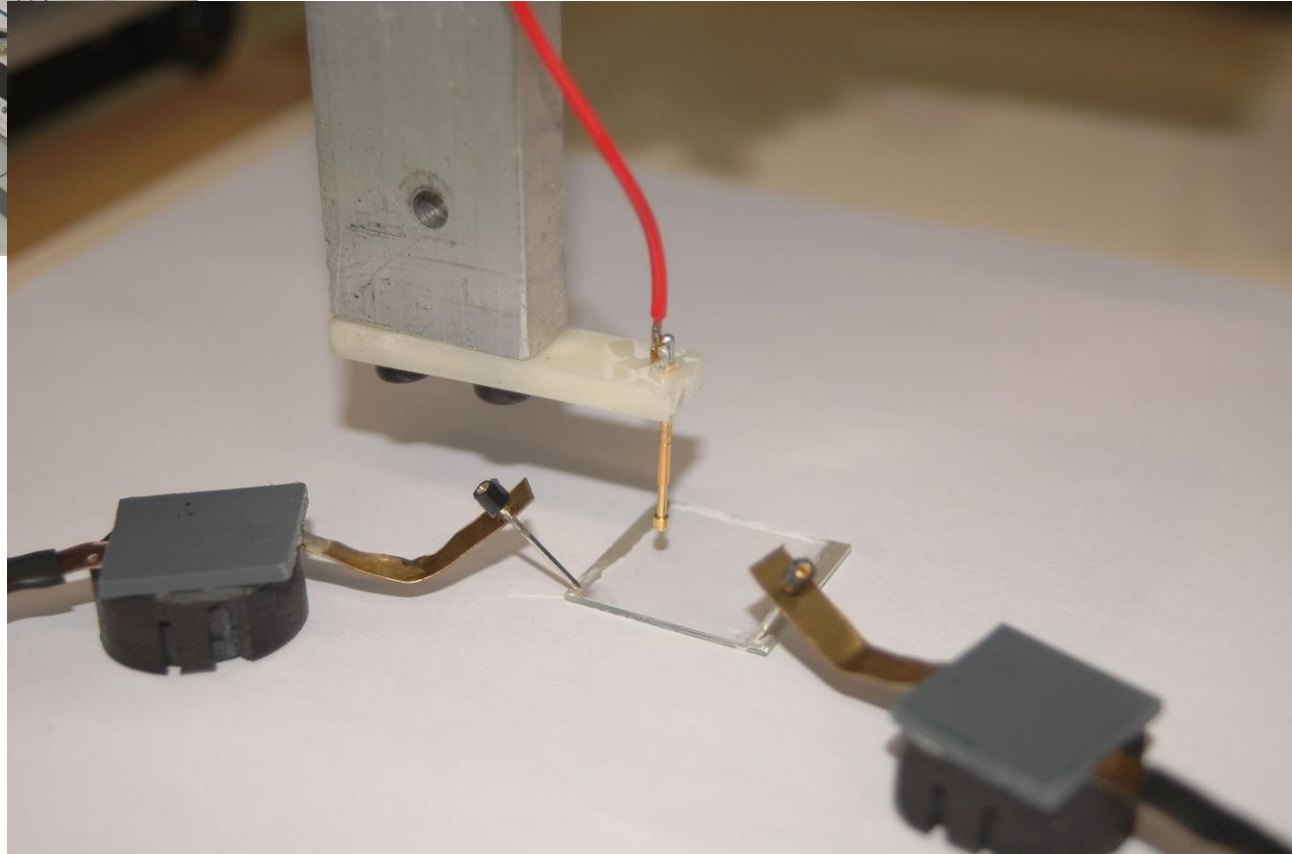
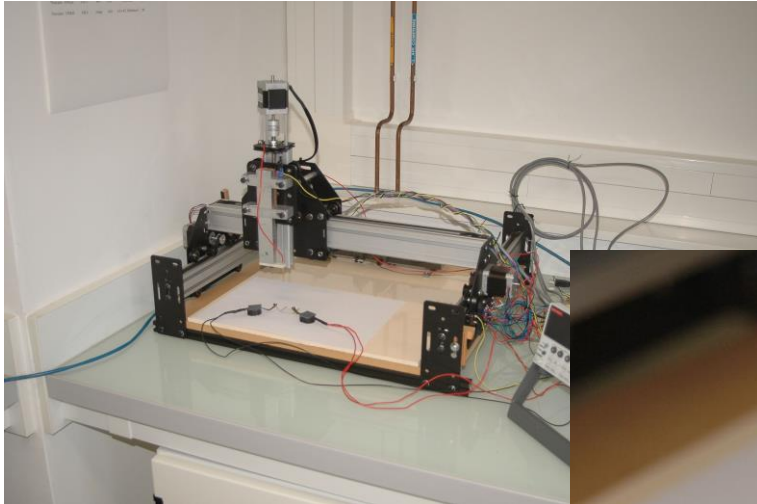
Substrat en verre:
25 x 25 mm

Pointe à ressort *Harwin P25*

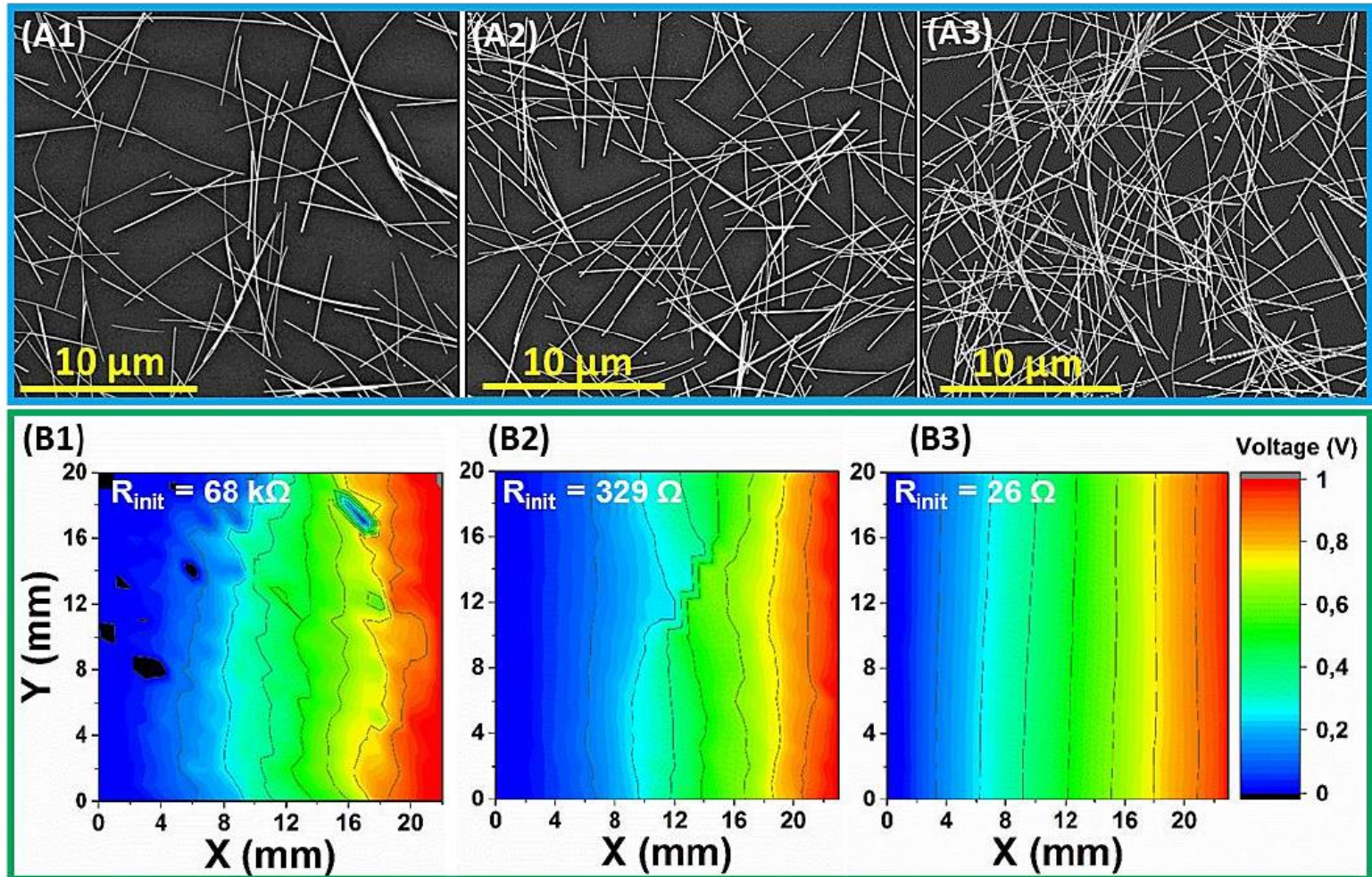
Source Measure Unit *Keithley 2602* :

- Une voie pour imposer la tension
- Une voie pour mesurer le potentiel de la pointe

Cartographie des potentiels



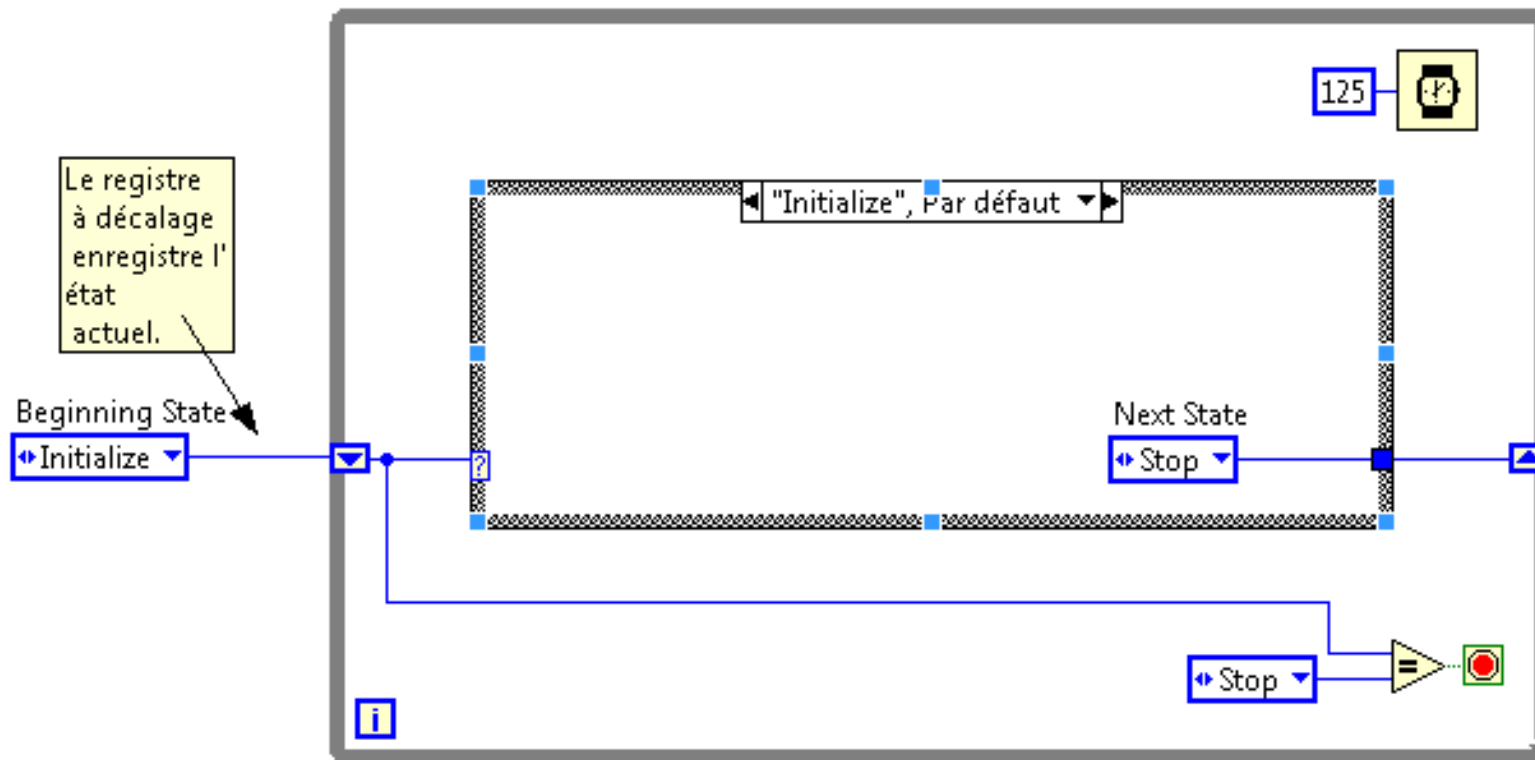
Résultats



Ref: Thèse de Thomas SANNICOLO (LMGP – CEA), 30 octobre 2017

LabVIEW

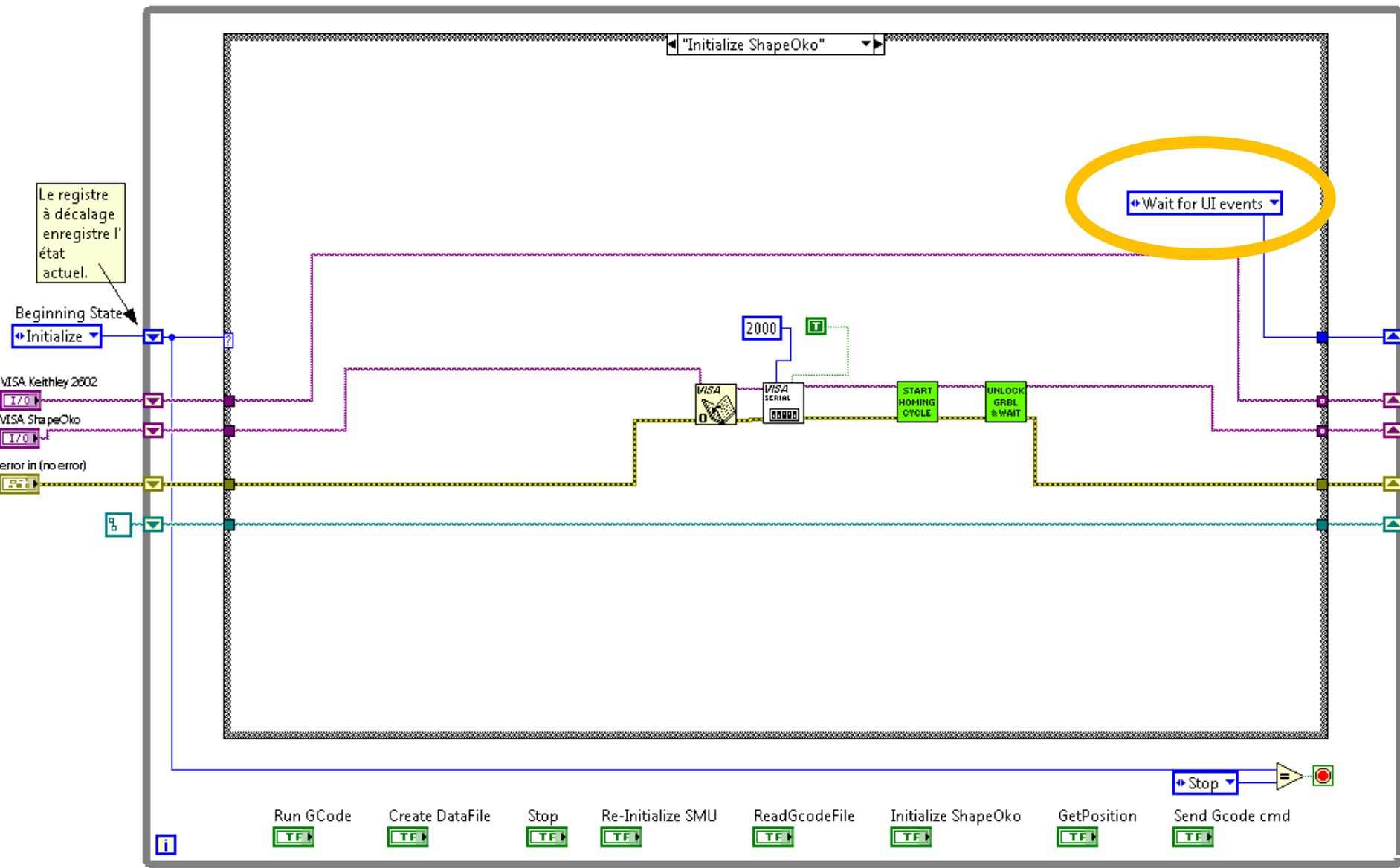
- Utilisation du modèle « Machine à états standard »



Avantage : une face-avant plus « réactive »

The screenshot displays the Shapeoko software interface with several control panels:

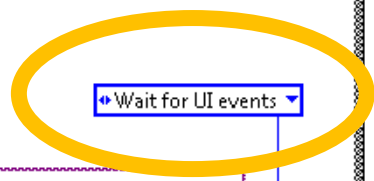
- Initialize ShapeOko**: A green button labeled "OK".
- Re-Initialize SMU**: A green button labeled "OK".
- VISA Keithley 2602**: Includes a dropdown menu set to "Keithley2602", a "Source Voltage (V)" input set to 1, and a "Source Current (A)" input set to 0.
- VISA ShapeOko**: Includes a dropdown menu set to "COM4", a "Current Compliance (A)" input set to 1, and a "Voltage Compliance (V)" input set to 12.
- Modifs:** A yellow notification box containing the text: "2017.06.19: - les fichiers sont dans le sous-dossier 'data' - j'enregistre désormais le Vimposé en plus du Imacro - dans le fichier, les X et Y sont en relatifs. Càd le 1er point est en (x,y) = (0,0)".
- READ GCODE FILE**: A grey button.
- CREATE FILE**: A grey button.
- GET POSITION**: A grey button.
- SEND GCODE cmd**: A grey button.
- RUN GCODE**: A grey button.
- STOP**: A red button.
- Gcode Filepath**: An empty text input field.
- Test-Name**: A text input field containing "toto".
- Current Data File**: A text input field with a spinner control set to 0.
- Current (macro)**: A text input field set to 0.
- Voltage (Probe)**: A text input field set to 0.
- Output**: An empty text input field.
- Voltage (macro)**: A text input field set to 0.
- Pos XYZ while measuring**: A vertical stack of four text input fields, each set to 0, with a spinner control set to 0 to its left.
- ActiveLine**: An empty text input field.
- GRBL status**: A large empty text area.
- GRBL answer**: A text input field.
- nb gcode**: A text input field set to 0.
- active lin**: A text input field set to 0.
- GCODE lines**: A text input field set to 0.



Le registre à décalage enregistre l'état actuel.

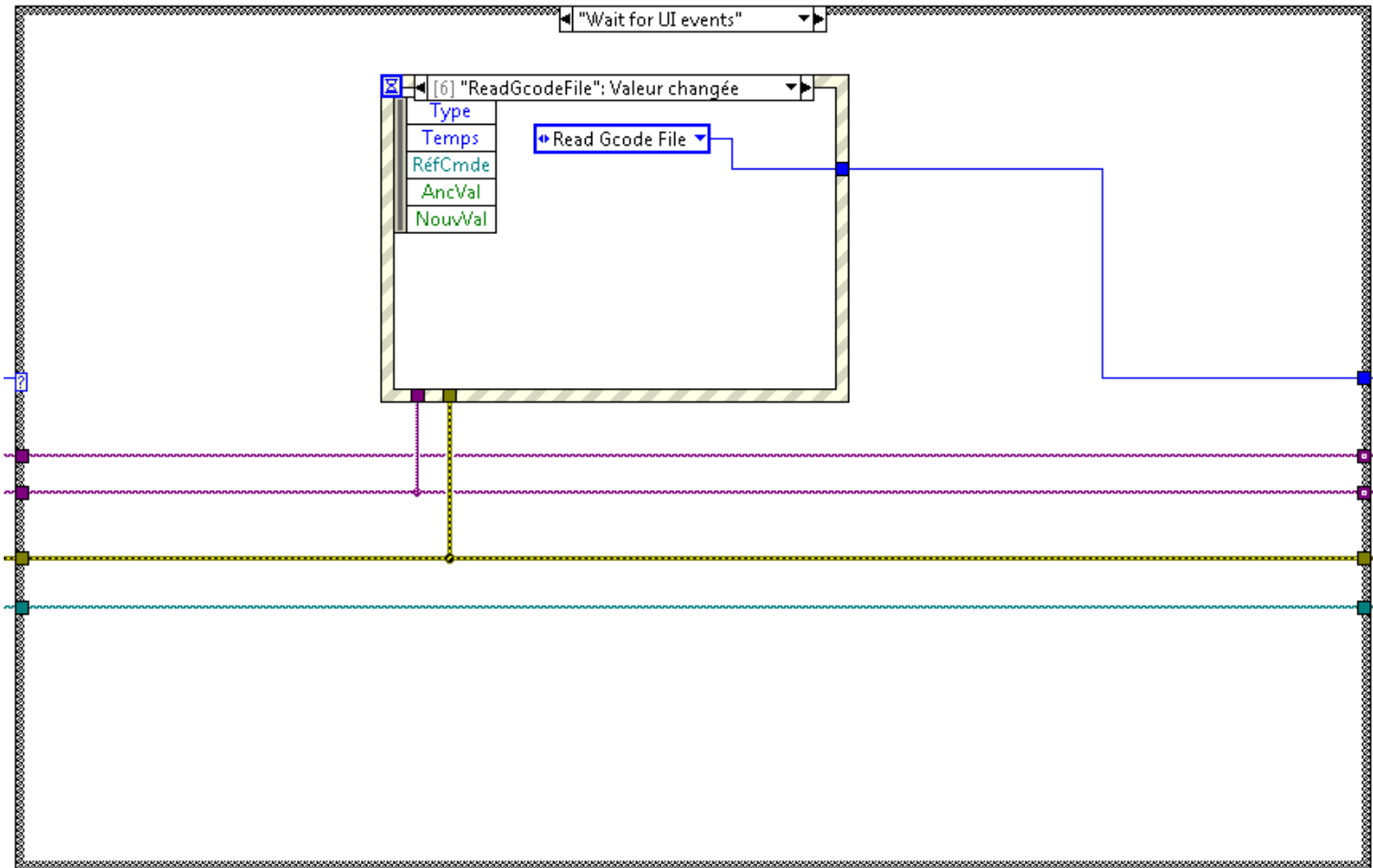
Beginning State

VISA Keithley 2602
I/O
VISA ShapeOko
I/O
error in (no error)

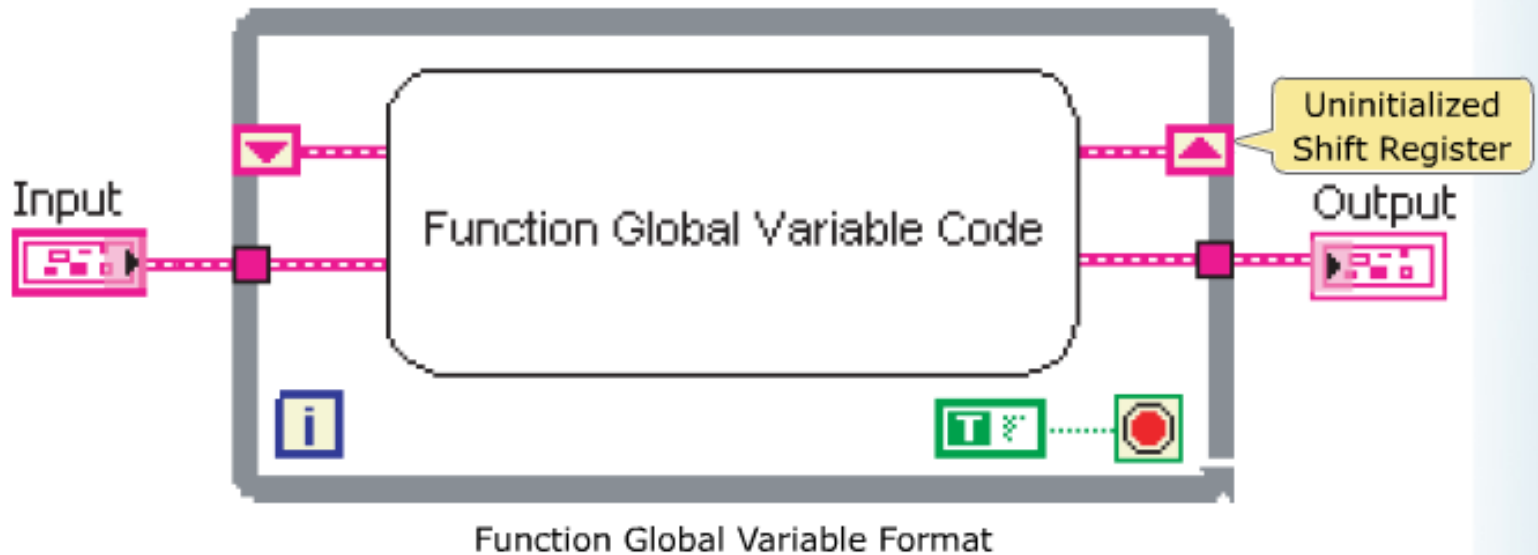


Run GCode TF
Create DataFile TF
Stop TF
Re-Initialize SMU TF
ReadGcodeFile TF
Initialize ShapeOko TF
GetPosition TF
Send Gcode cmd TF

Etat « Wait for UI events »



Function Global Variable (FGV)

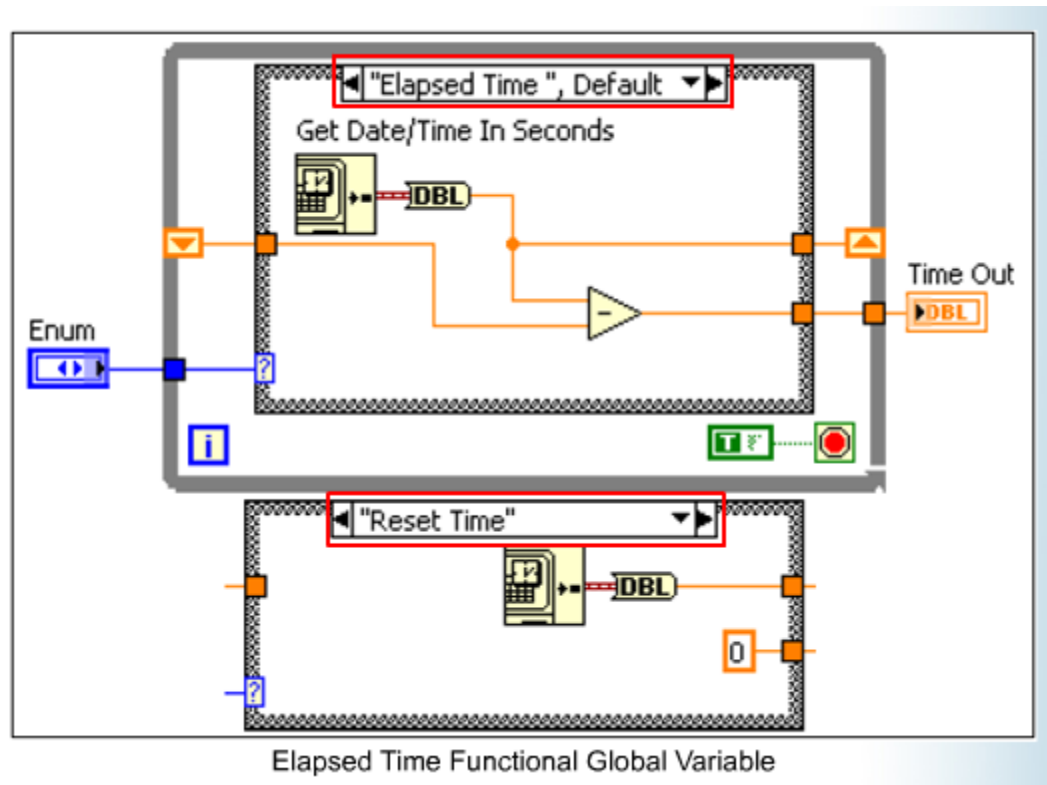


NATIONAL INSTRUMENTS
LabVIEW

Development in LabVIEW



FGV (2)



Améliorations en cours

- Diminuer le temps nécessaire à une cartographie
 - - 1 pointe → environ 15 minutes pour un substrat 25x25mm et une résolution de 1mm
- Mesurer le potentiel sur plusieurs pointes pseudo-simultanément



Mesures sur plusieurs pointes

- 2 options étudiées:

- NI-USB 6225

M Series Multifunction DAQ for USB - 16-Bit,



- Switch PXI-2593 + SMU

