



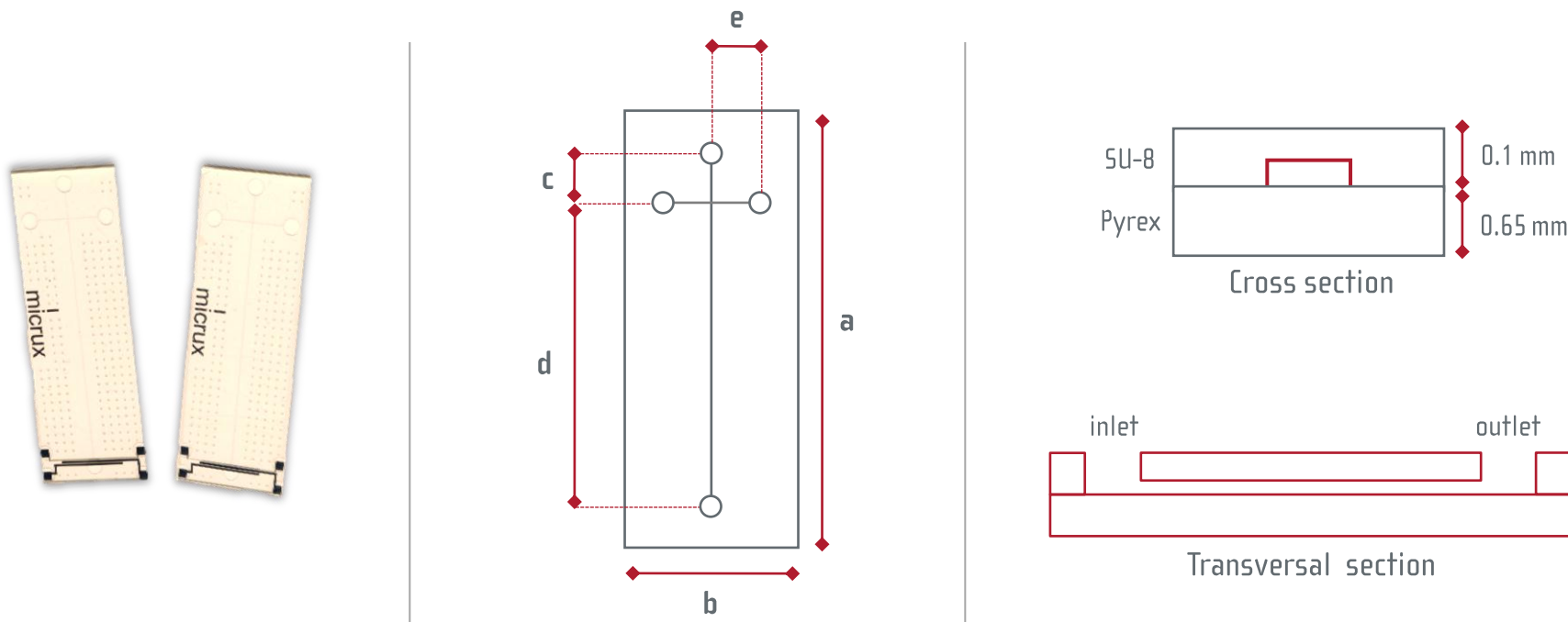
# SU-8/PYREX MICROCHIPS WITH INTEGRATED MICROELECTRODES

# SU-8/Pyrex Microchips

## » SU-8/Pyrex single-channel microchips

Two crossed microchannels fabricated on EPON SU-8 resin with integrated microelectrodes on Pyrex cover plate.

Highly resistant hybrid SU-8/Pyrex material for reusable microfluidic chips. Long life (over 1000 runs/injections) at minimal cost\*.



Ref.	Channel Geometry (µm)		Access holes (mm)	Microchip dimensions (mm)				
	width	depth		a	b	c	d	e
<i>MCE-SU8-YYY-xx00XT</i>	50	20	2	38	13	5	30	5

\*Depending of the experimental conditions and samples.

# SU-8/Pyrex Microchips

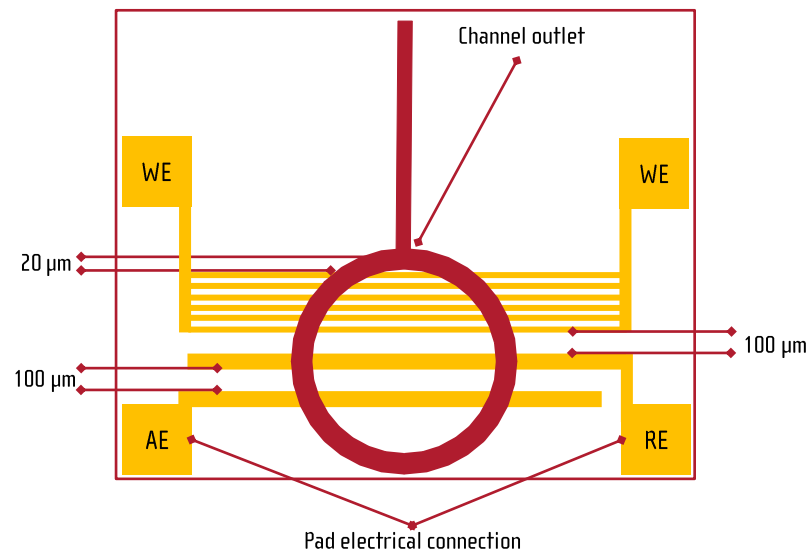
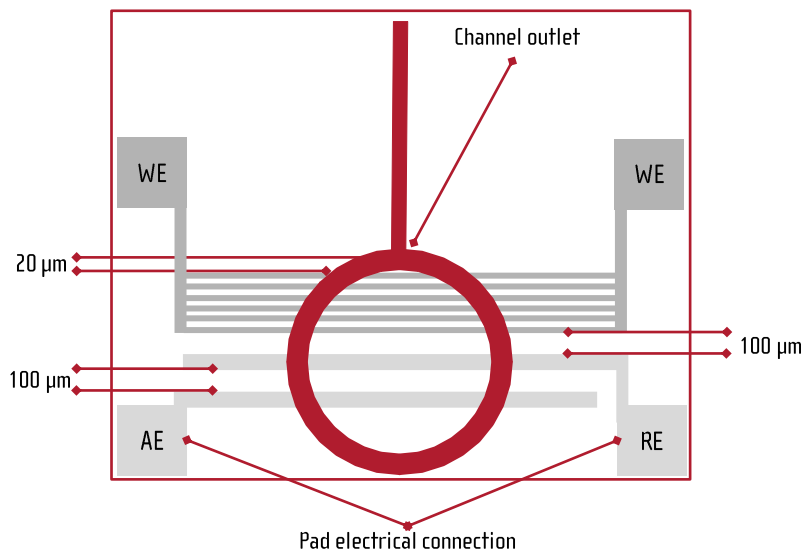
## » SU-8/Pyrex single-channel microchips - MEA

### INTEGRATED MICROELECTRODE ARRAY (MEA)

The electrochemical detection (ED) system consists of six 10- $\mu\text{m}$  microelectrodes with an array approach

» Electrodes: 50/150 nm titanium/platinum thin-film

» Electrodes: 50/150 nm chromium/gold thin-film



- » WE: working electrode
- » RE: reference electrode
- » AE: auxiliary electrode

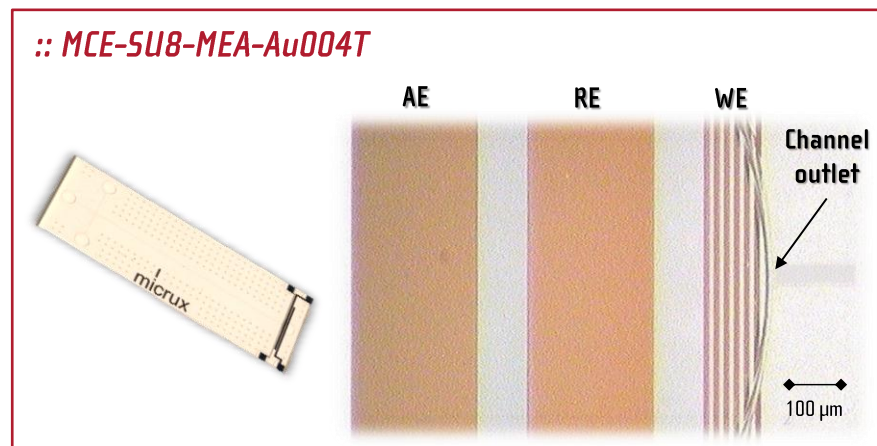
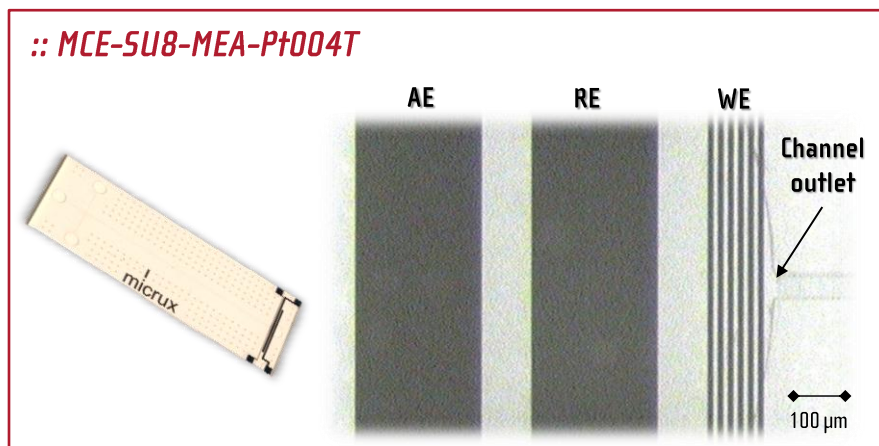
The end-channel electrochemical detector are placed 20  $\mu\text{m}$  from the channel outlet.  
A 10- $\mu\text{m}$  gap is shown between microelectrodes of array

# SU-8/Pyrex Microchips

## » SU-8/Pyrex single-channel microchips - MEA

MICROELECTRODE array DETECTOR DESIGNS

Electrodes are available in different materials



Ref.	Electrode material	Electrochemical detector (μm)		
		WE	RE	AE
<i>MCE-SU8-MEA-Pt004T</i>	Platinum	6x10	250	250
<i>MCE-SU8-MEA-Au004T</i>	Gold	6x10	250	250

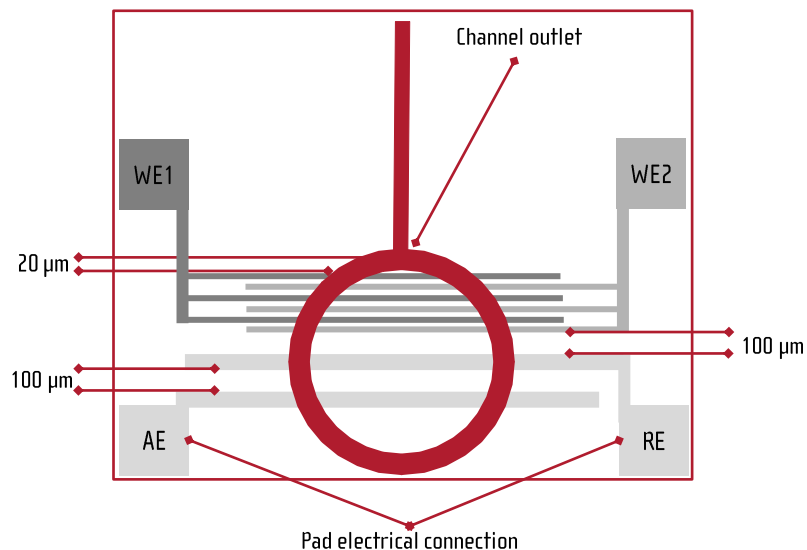
# SU-8/Pyrex Microchips

## » SU-8/Pyrex single-channel microchips - IDA

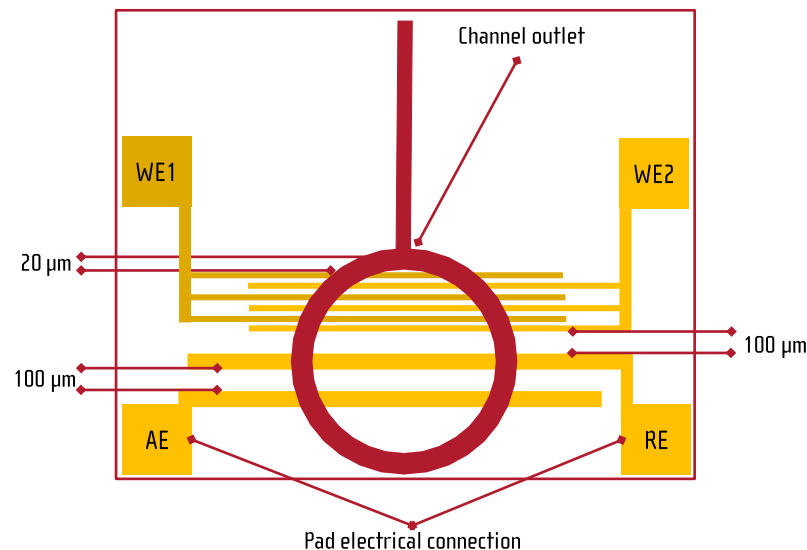
### INTEGRATED INTERDIGITATED ARRAY (IDA) MICROELECTRODES

The electrochemical detection (ED) system consists of two arrays of three 10- $\mu\text{m}$  microelectrodes with an interdigitated approach

» Electrodes: 50/150 nm titanium/platinum thin-film



» Electrodes: 50/150 nm chromium/gold thin-film



- » WE1/WE2: working electrodes
- » RE: reference electrode
- » AE: auxiliary electrode

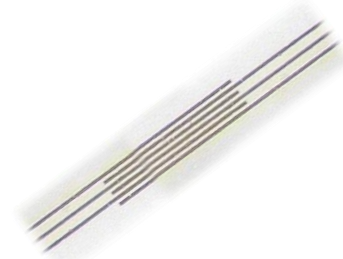
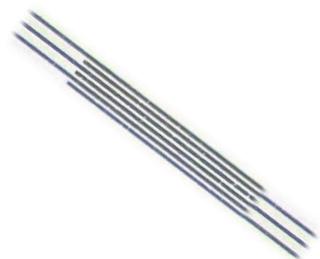
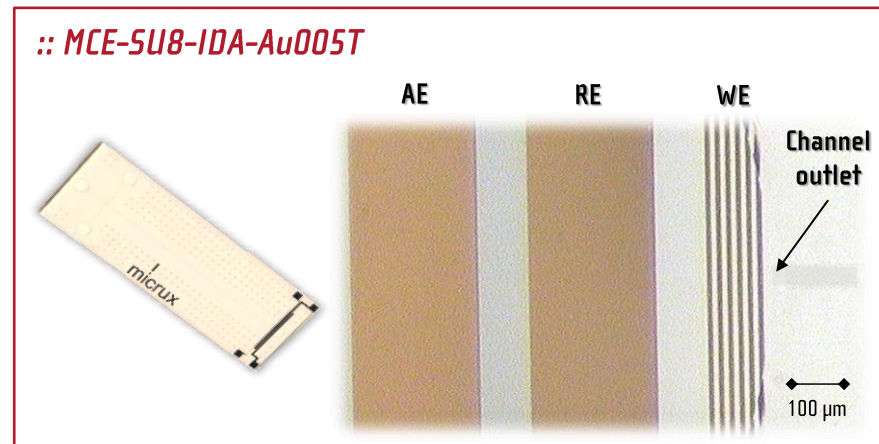
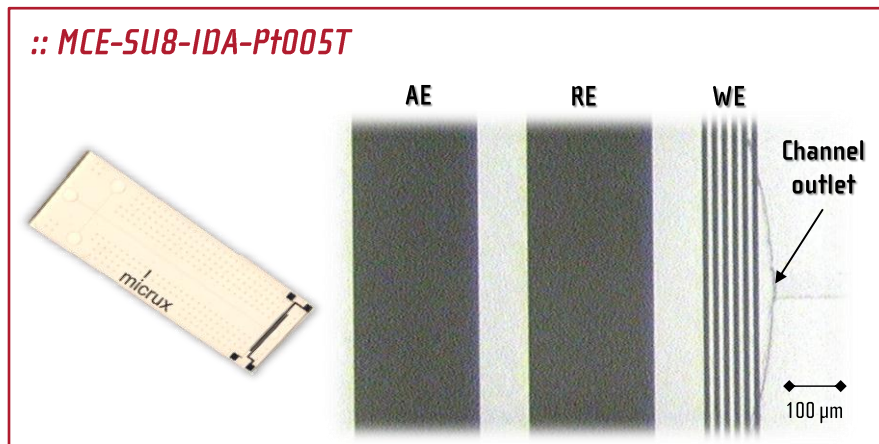
The end-channel electrochemical detector are placed 20  $\mu\text{m}$  from the channel outlet.  
A 10- $\mu\text{m}$  gap is shown between microelectrodes of interdigitated array

# SU-8/Pyrex Microchips

## » SU-8/Pyrex single-channel microchips - IDA

### INTERDIGITATED ARRAY MICROELECTRODE DETECTOR DESIGNS

Electrodes are available in different materials



Ref.	Electrode material	Electrochemical detector (μm)		
		WE	RE	AE
<i>MCE-SU8-IDA-Pt005T</i>	Platinum	2x(3x10)	250	250
<i>MCE-SU8-IDA-Au005T</i>	Gold	2x(3x10)	250	250

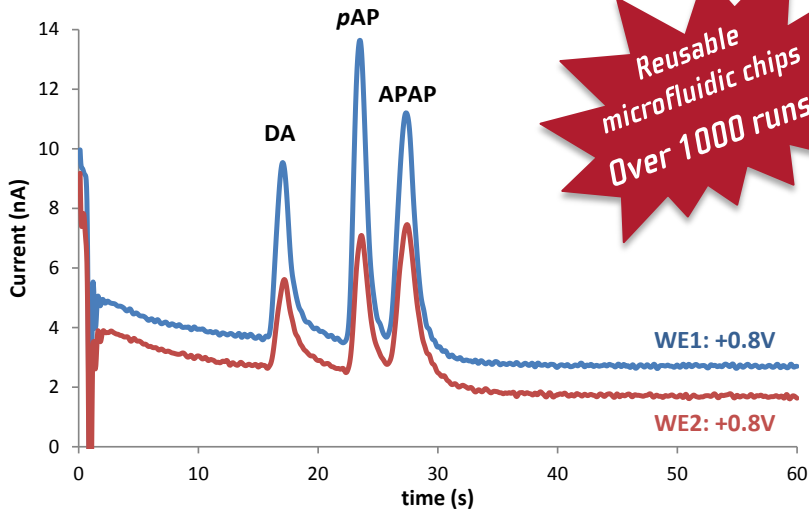
# SU-8/Pyrex Microchips

## » SU-8/Pyrex single-channel microchips with integrated microelectrodes

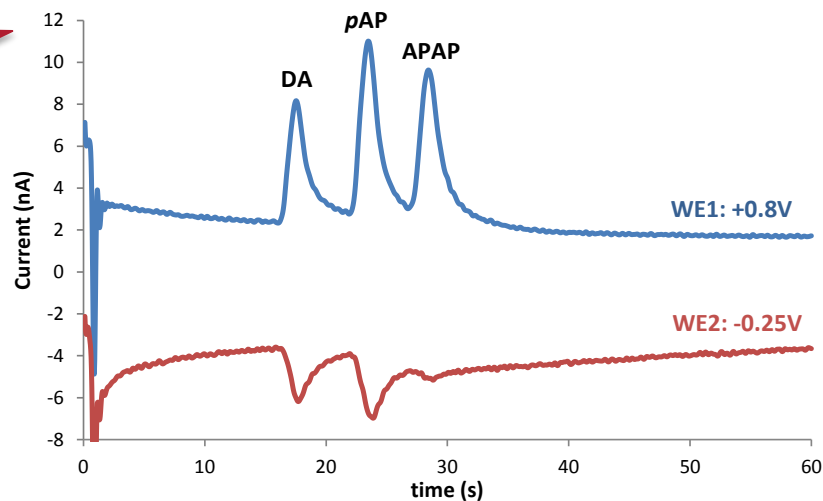
MICROELECTRODE AND INTERDIGITATED ARRAYS ALLOW ENHANCING THE SIGNAL-TO-NOISE RATIO. MOREOVER, INTERDIGITATED ARRAYS IMPROVE THE SELECTIVITY OF THE SYSTEM.

**:: MCE-SU8-IDA-P1005T**

**- Same detection potential**



**- Different detection potential**



*Electrochromatograms for the separation of 100  $\mu$ M DA, 100  $\mu$ M pAP and 250  $\mu$ M APAP using a SU-8/pyrex single-channel microchip with an interdigitated array microelectrode applying same and different detection potentials.  
Conditions: Running buffer: 20 mM MES pH = 6.0;  $V_{inj} = +750$  V for 3s,  $V_{sep} = +1000$  V.*

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