Spectre simulations for APTS SF and APTS with in-pixel amplifier

Andrei Dorokhov
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Simulation: description and parameters

4 combinations of pixels are simulated AC/DC and
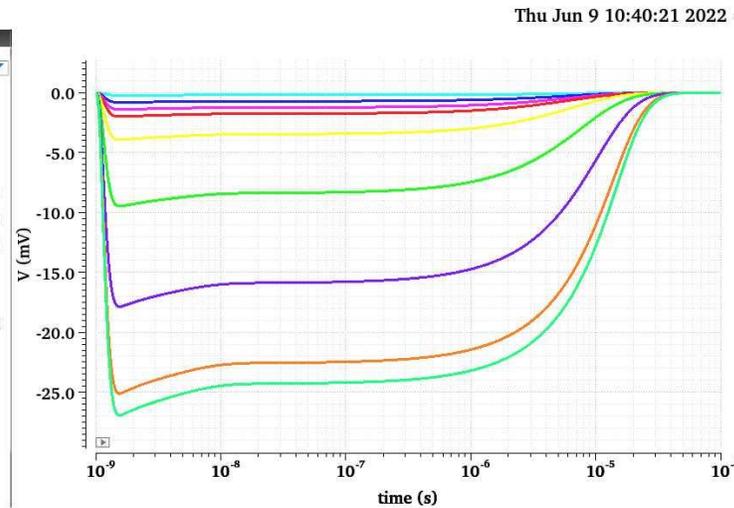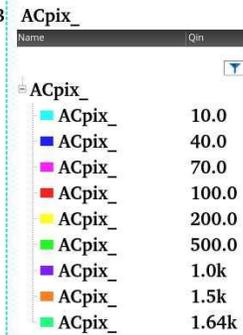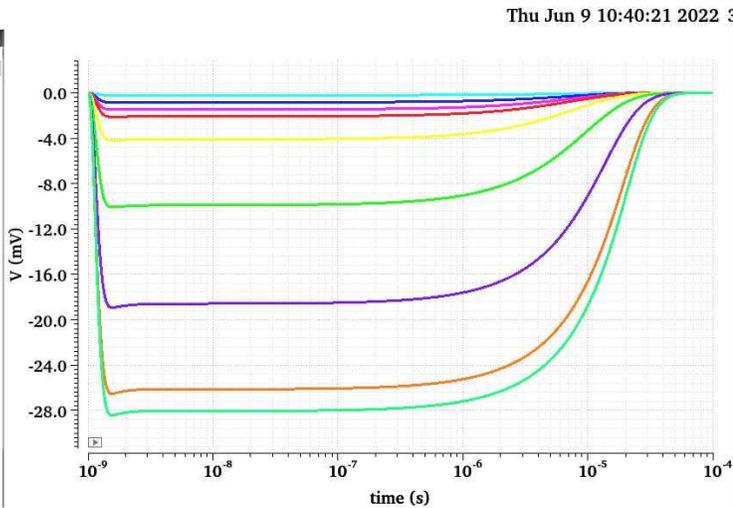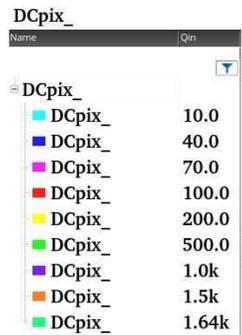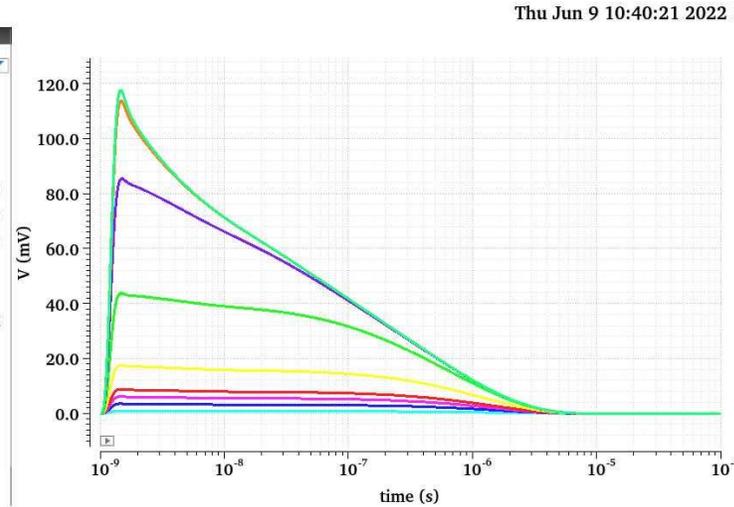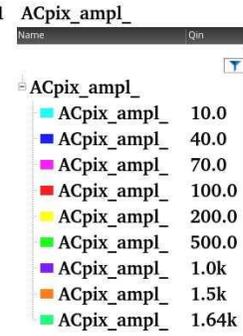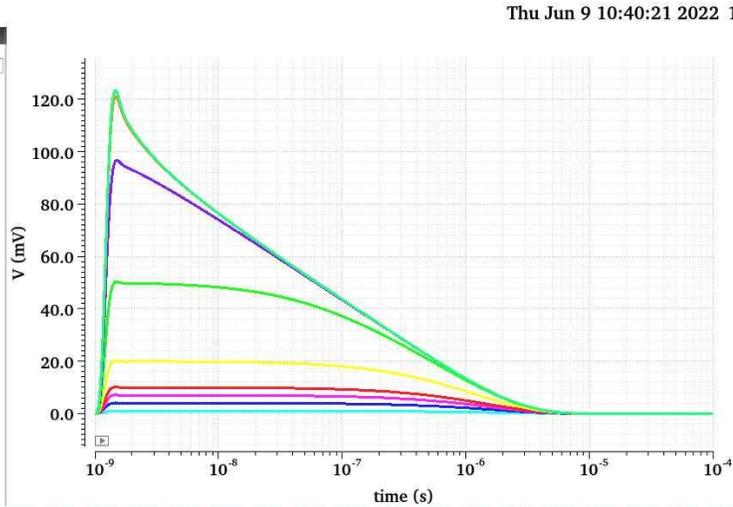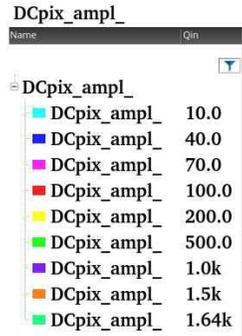with/without in-pixel amplifier:
1) DCpix_ampl
2) ACpix_ampl
3) DCpix
4) ACpix

- Signal varied from 10 to 1640e
- ENC calculated for 100e, where all pixels are in
  linear range
- Some biasing parameters optimized for in-pixel
  amplifier circuit
- Detector diode emulated with capacitance
  cdet=2fF, lekage 2fA
- AC coupling capa 5fF
- PCB load capacitance 5pF

	Design Variables	
	Name	Value
1	IRESET	100n
2	IBIASP	20u
3	IBIASN	1.6m
4	IBIAS3	400u
5	IBIAS4	6m
6	VRESET	200m
7	PWELL	0
8	calib_capa	160a
9	cdet	2f
10	ileak	2f
11	in_coupling_capa	6f
12	Cpcb	5p
13	Qin	100

Signal transient response

Noise spectra and ENC

pixel	ENC
DCpix_ampl	15.4 e
ACpix_ampl	19.2 e
DCpix	27.9 e
ACpix	32.9 e

Feuille de calcul
Microsoft Excel

andrei.dorokhov@iphc.cnrs.fr   IPHC Strasbourg