

# Characterization of the PASA Engineering Run Samples

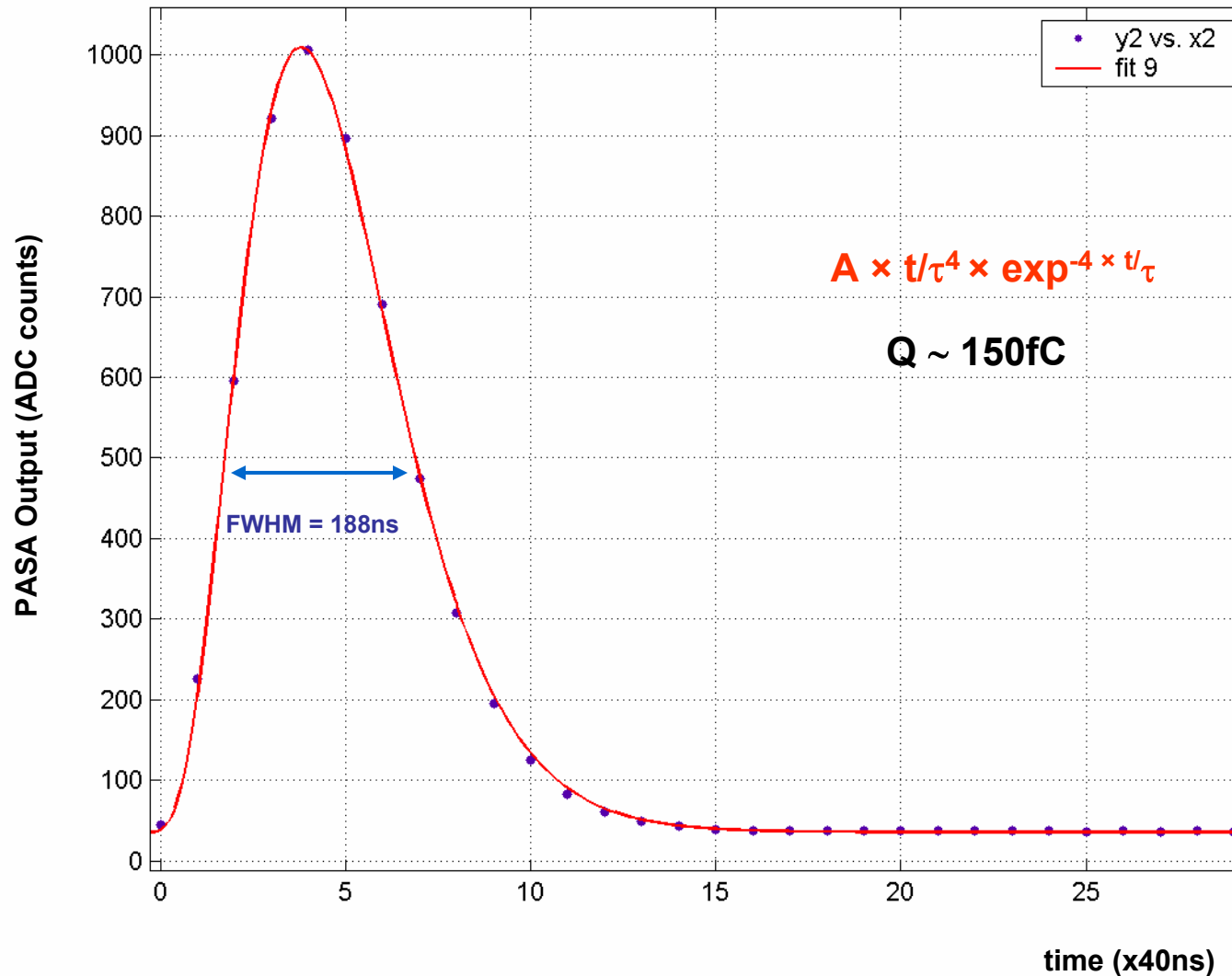
H.K. Soltveit

## Characterization of the PASA ER samples

- 500 chip packaged in plastic case were delivered 1<sup>st</sup> week of September
- 16 chips delivered to CERN for the characterization and ER approval
- 2 FEC loaded and ready for test at the TPC Sector test
- 2 chips (32 channels) fully characterized in the laboratory
- The remaining 484 chips delivered to Darmstadt (TU) for screening test (see U. Bonnes presentation)

# IMPULSE RESPONSE FUNCTION

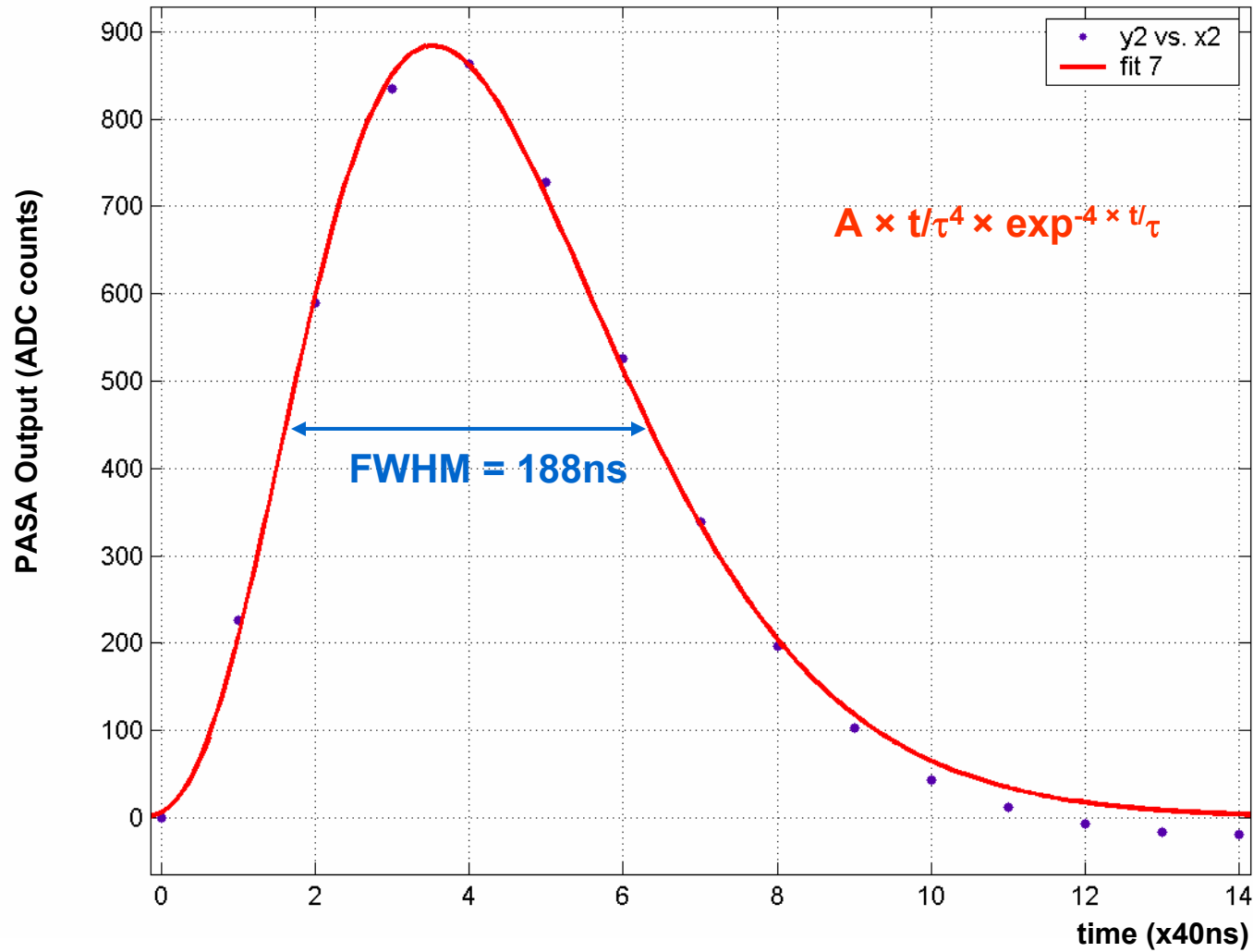
## CHIP #0 – CHANNEL #1



# IMPULSE RESPONSE FUNCTION

## CHIP #1 – CHANNEL #1

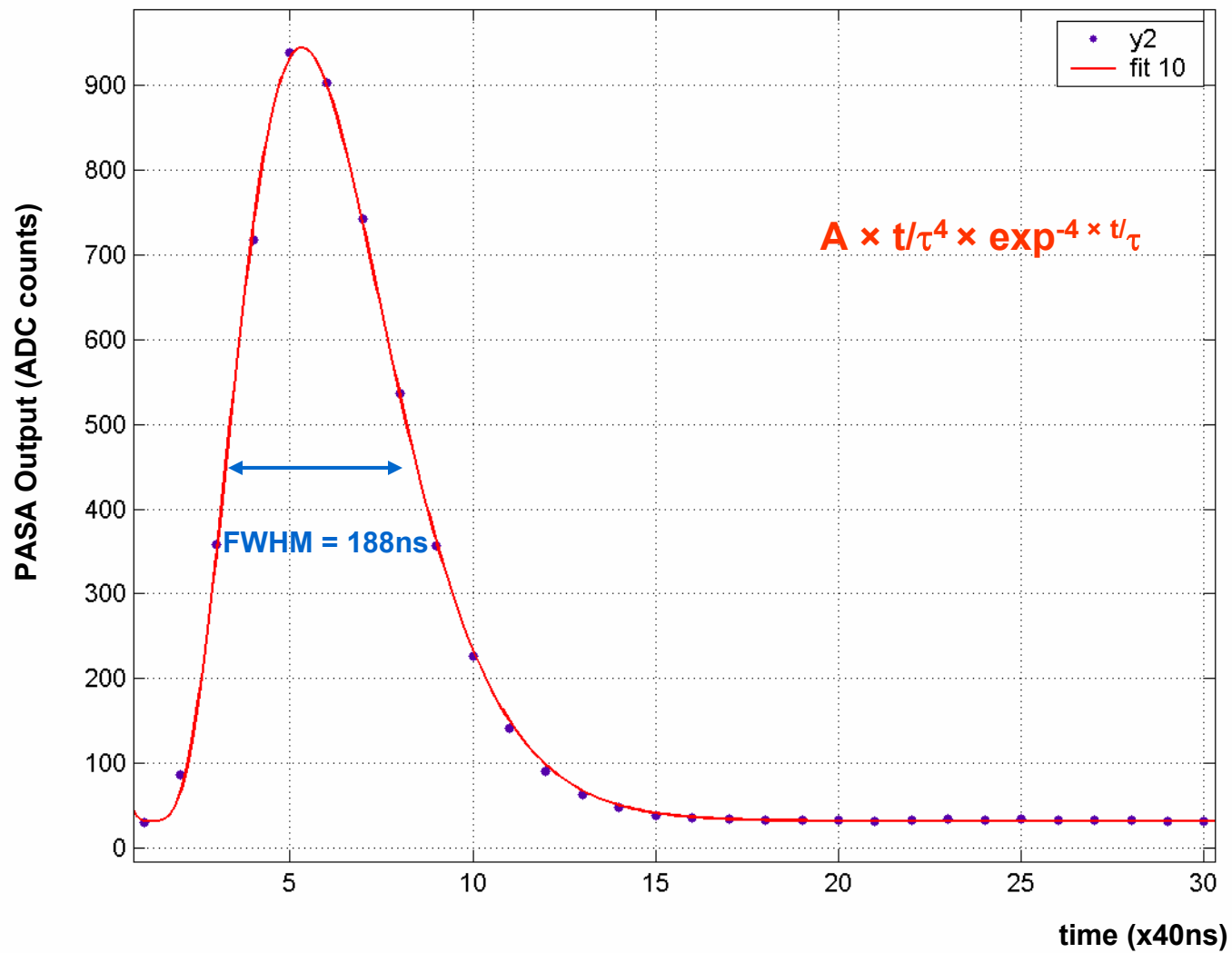
extra capacitive load (3.3pF, ~ 45% of nominal value)



# IMPULSE RESPONSE FUNCTION

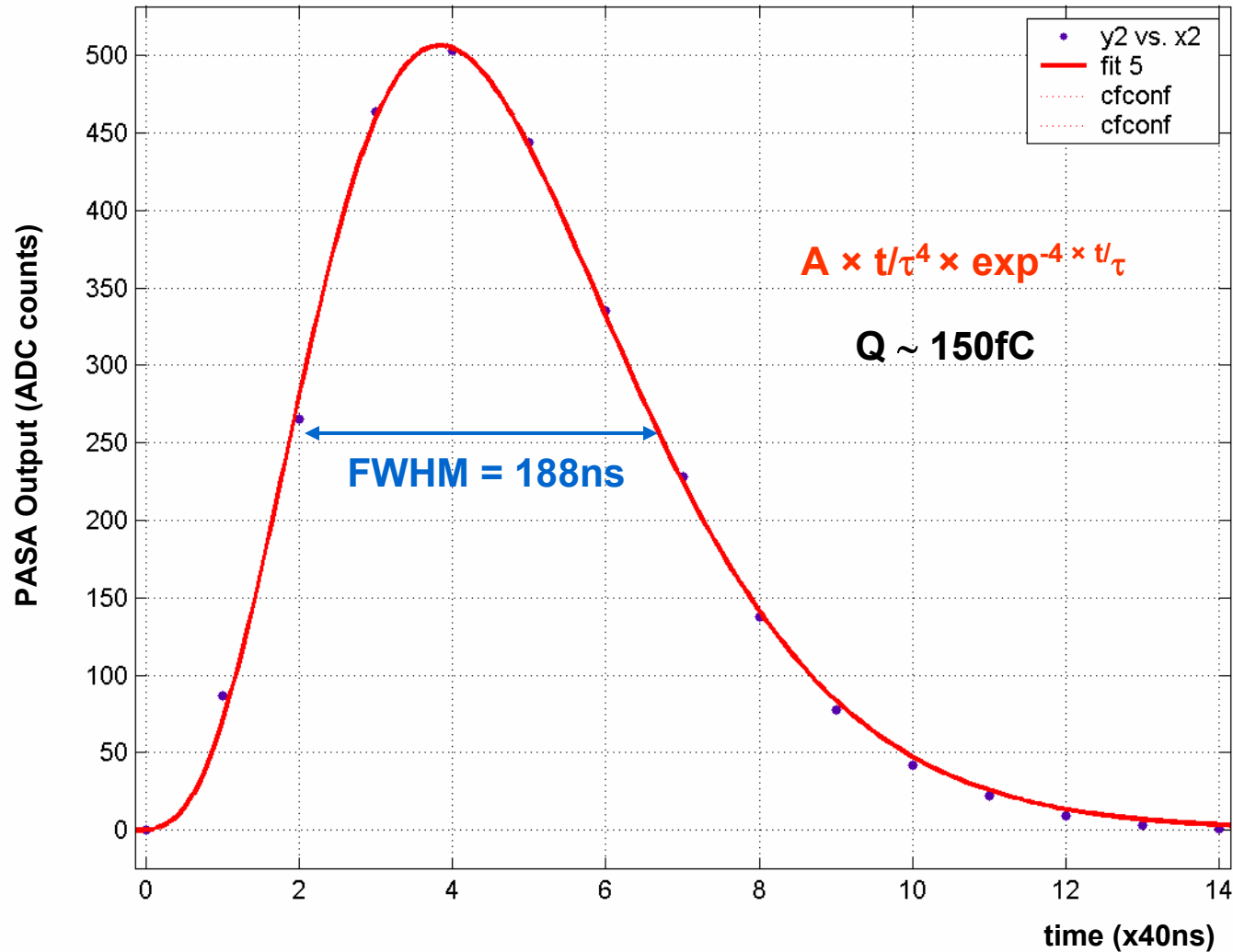
## CHIP #1 – CHANNEL #1

extra capacitive load (6.6pF, ~ 90% of nominal value)

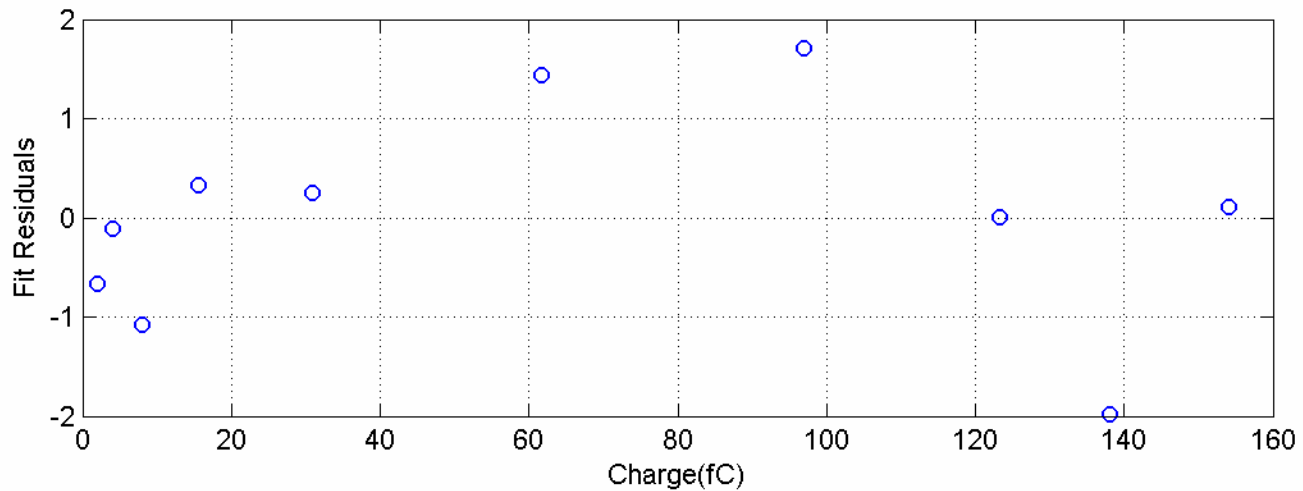
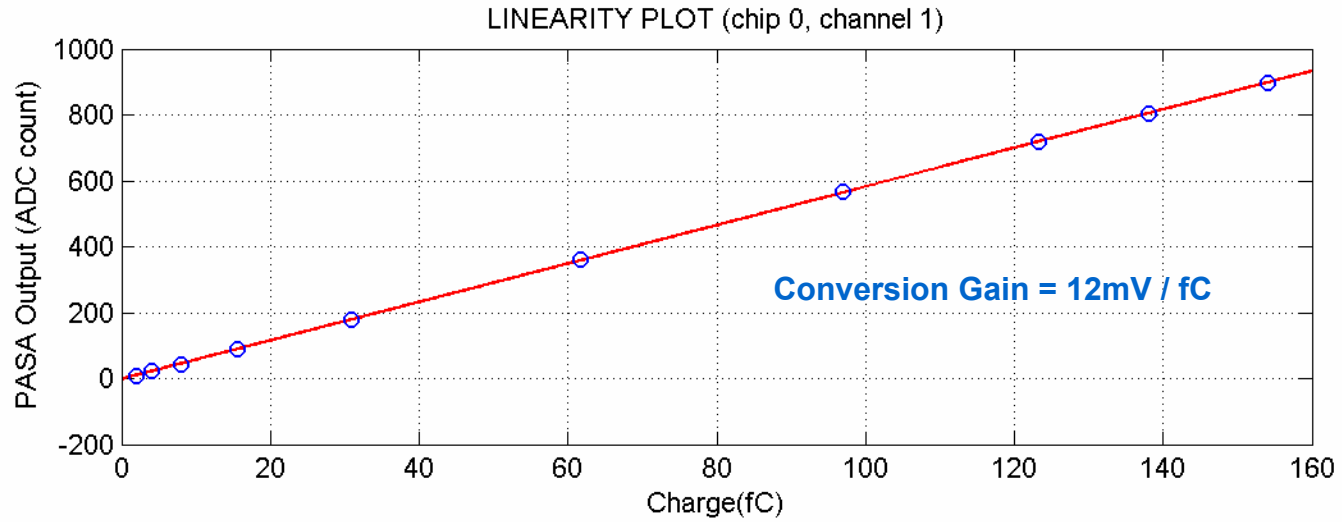


# IMPULSE RESPONSE FUNCTION

## CHIP #1 – CHANNEL #1 – POSITIVE POLARITY



# PASA LINEARITY



# Summary

Parameter	Requirement	MPR Version	ER Version
Noise	1000 e	566 e @12pF	560 e @12pF
Conversion gain	12mV / fC	10.8 mV / fC	12 mV / fC
Shaping time	190ns	190ns	188ns
Non linearity	< 1%	< 0.35%	0.2%
Crosstalk	< 0.3%	< 0.4%	< 0.1%
Baseline's dispersion		200 mV	60 mV
Power consumption	< 20mW / ch	12mW / ch	11mW / ch
Area		16.7mm <sup>2</sup>	18 mm <sup>2</sup>

- **The Engineering Run samples fulfill all requirements**
- **Improvements with respect the MPW:**
  - **crosstalk reduced by at least a factor 4**
  - **baseline dispersion reduced by a factor 2**
  - **better design compensation for the inaccuracy of the process models**