

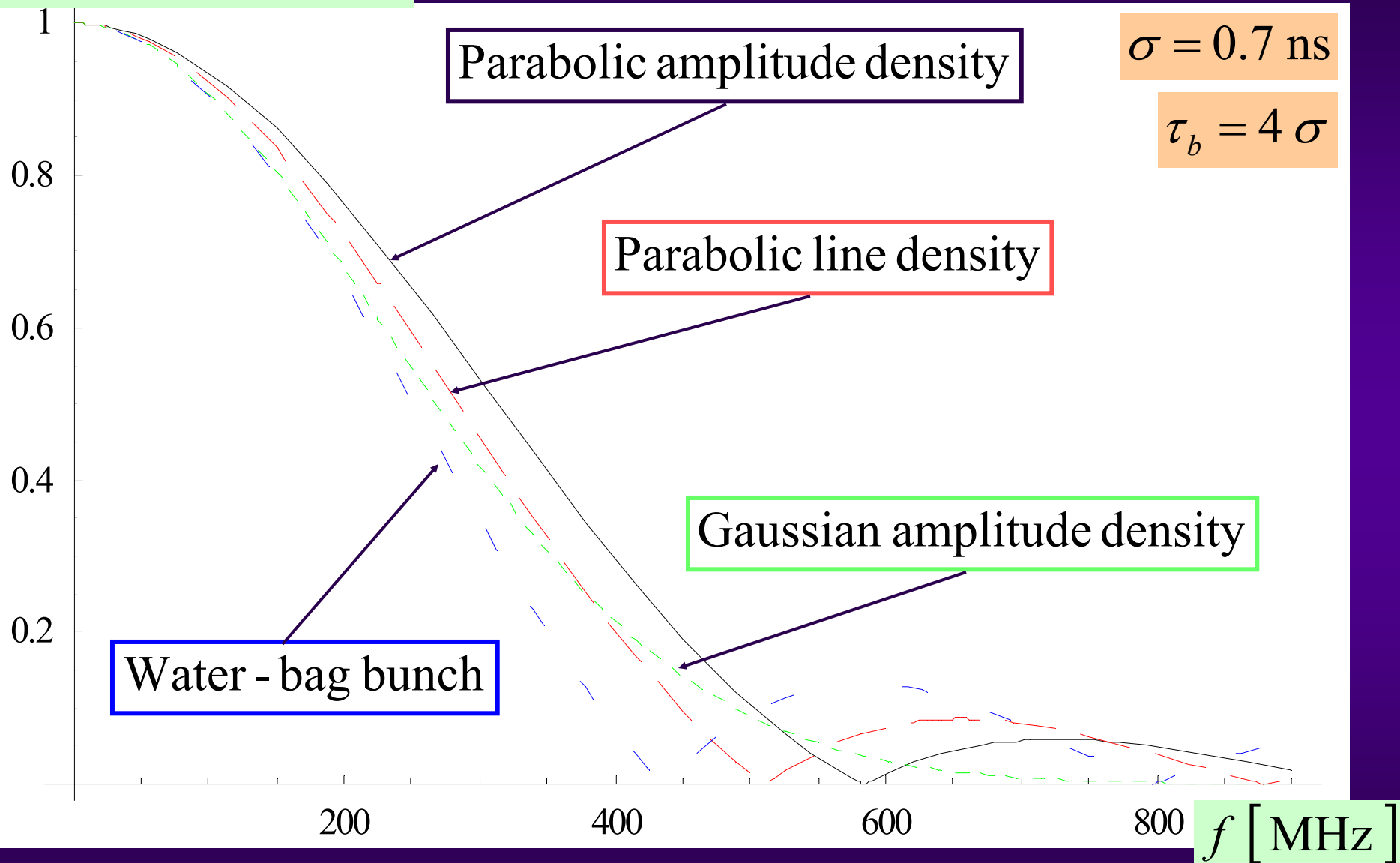
# AMPLITUDE AND POWER SPECTRA COMPARISON BETWEEN DIFFERENT TYPES OF LONGITUDINAL BUNCH PROFILES

E. Métral

- ◆ **Theory**
- ◆ **Comparison with measured spectra in 2003 and 2004 (given by Jan Uythoven  $\Rightarrow$  Follow-up of APC 17/09/04)**

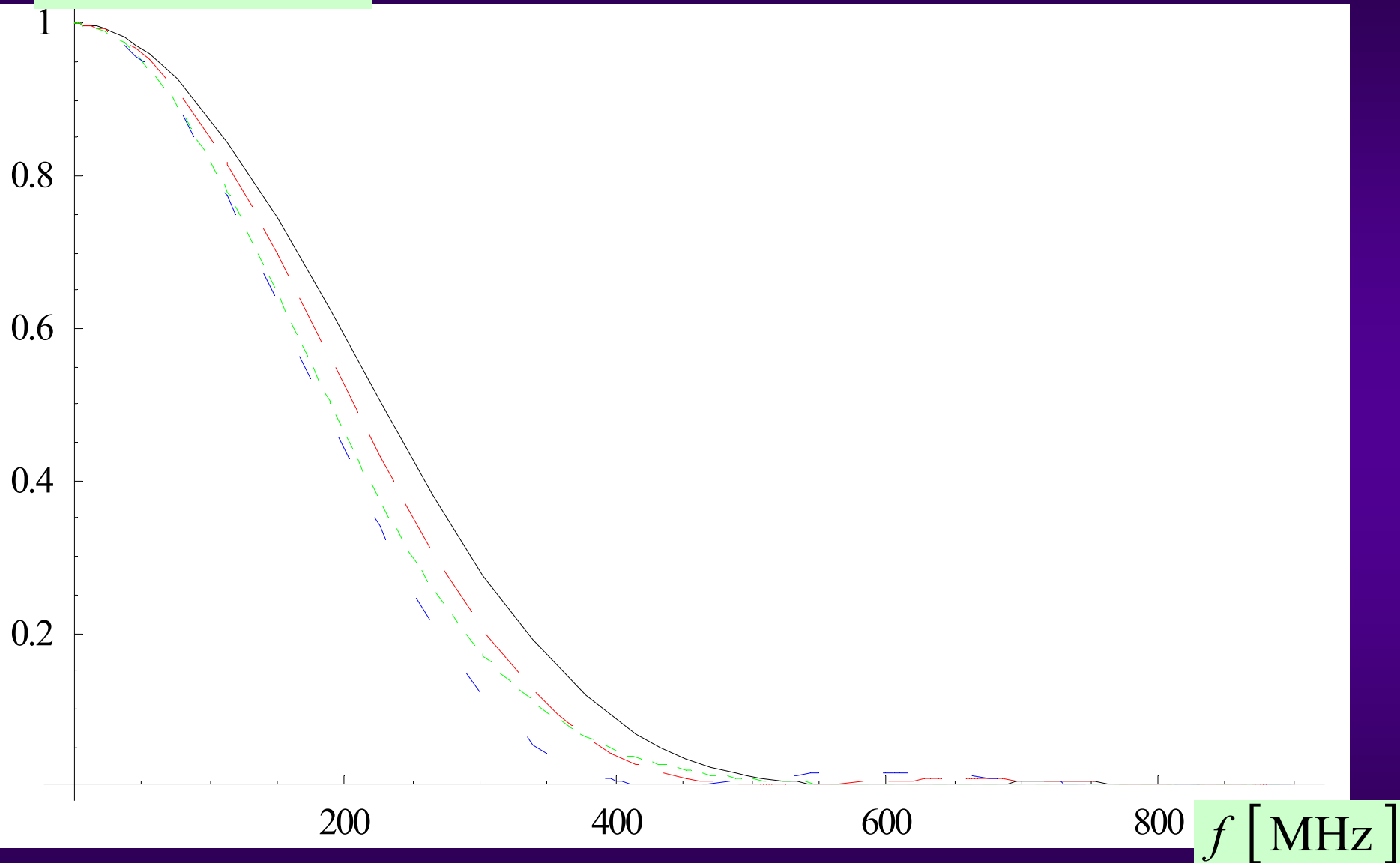
# THEORY (1/4)

## Amplitude spectrum



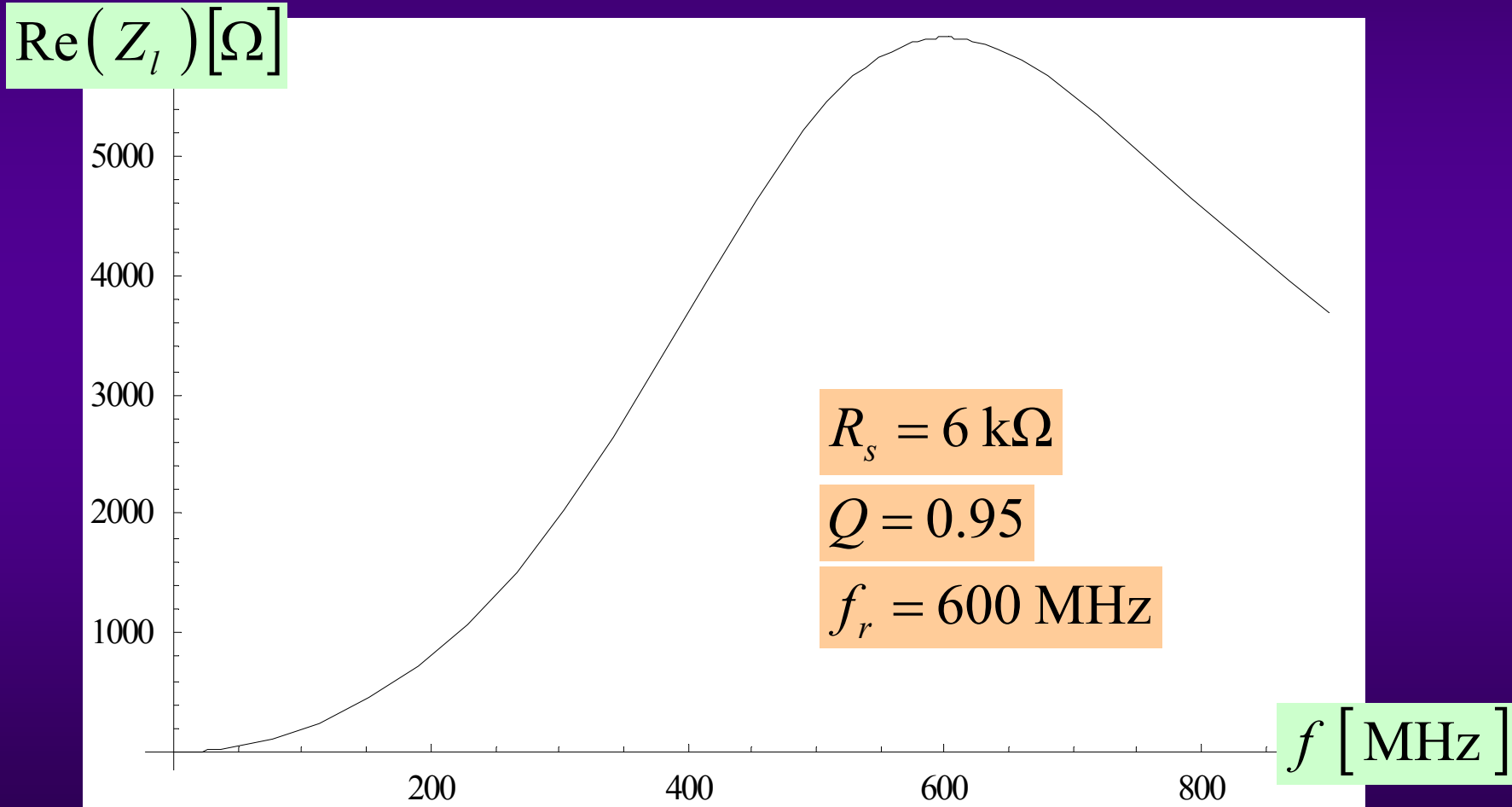
# THEORY (2/4)

Power spectrum



# THEORY (3/4)

Computation of the power loss in the case of a broad-band resonator impedance (fit used by Elena Shaposhnikova for the longitudinal impedance of 1 SPS MKE kicker, Chamonix XIII, p. 47)

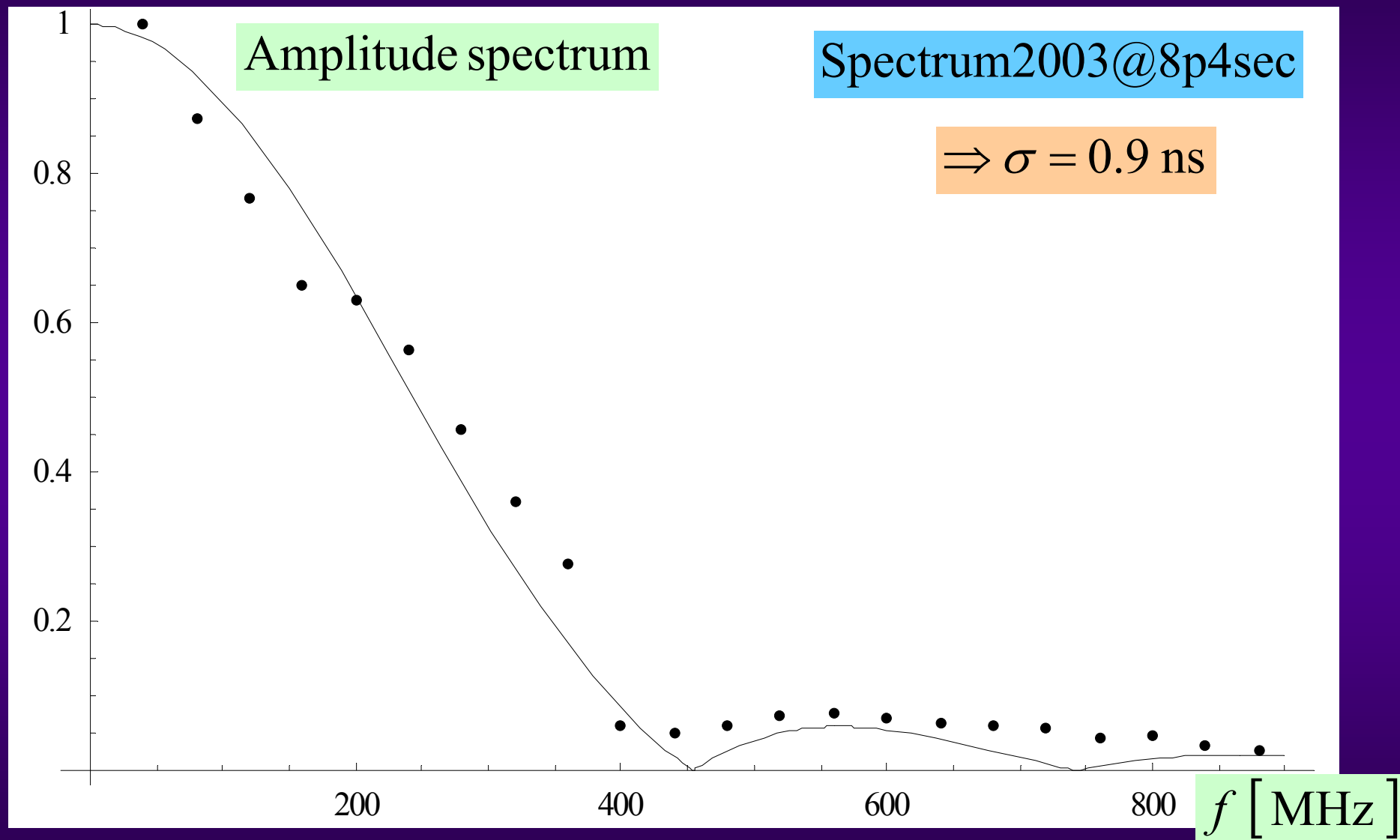


# THEORY (4/4)

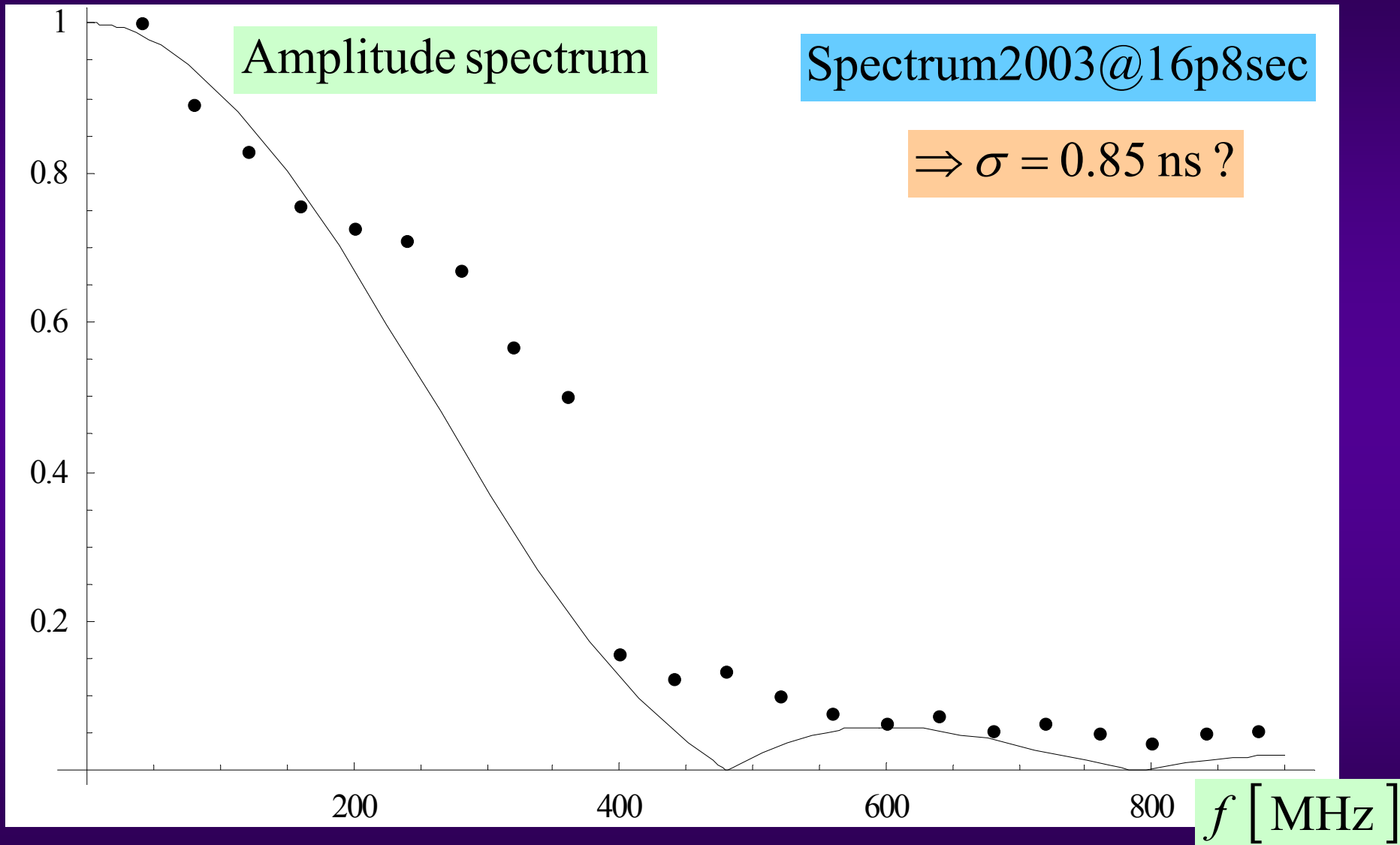
- ◆ Power (Parabolic line density) = **1.12** × Power (Gaussian)
- ◆ Power (Parabolic amplitude density) = **1.47** × Power (Gaussian)
- ◆ Power (Water-bag bunch) = **0.87** × Power (Gaussian)

**For the same total bunch  
length assumed  $\tau_b = 4 \times 0.7$  ns**

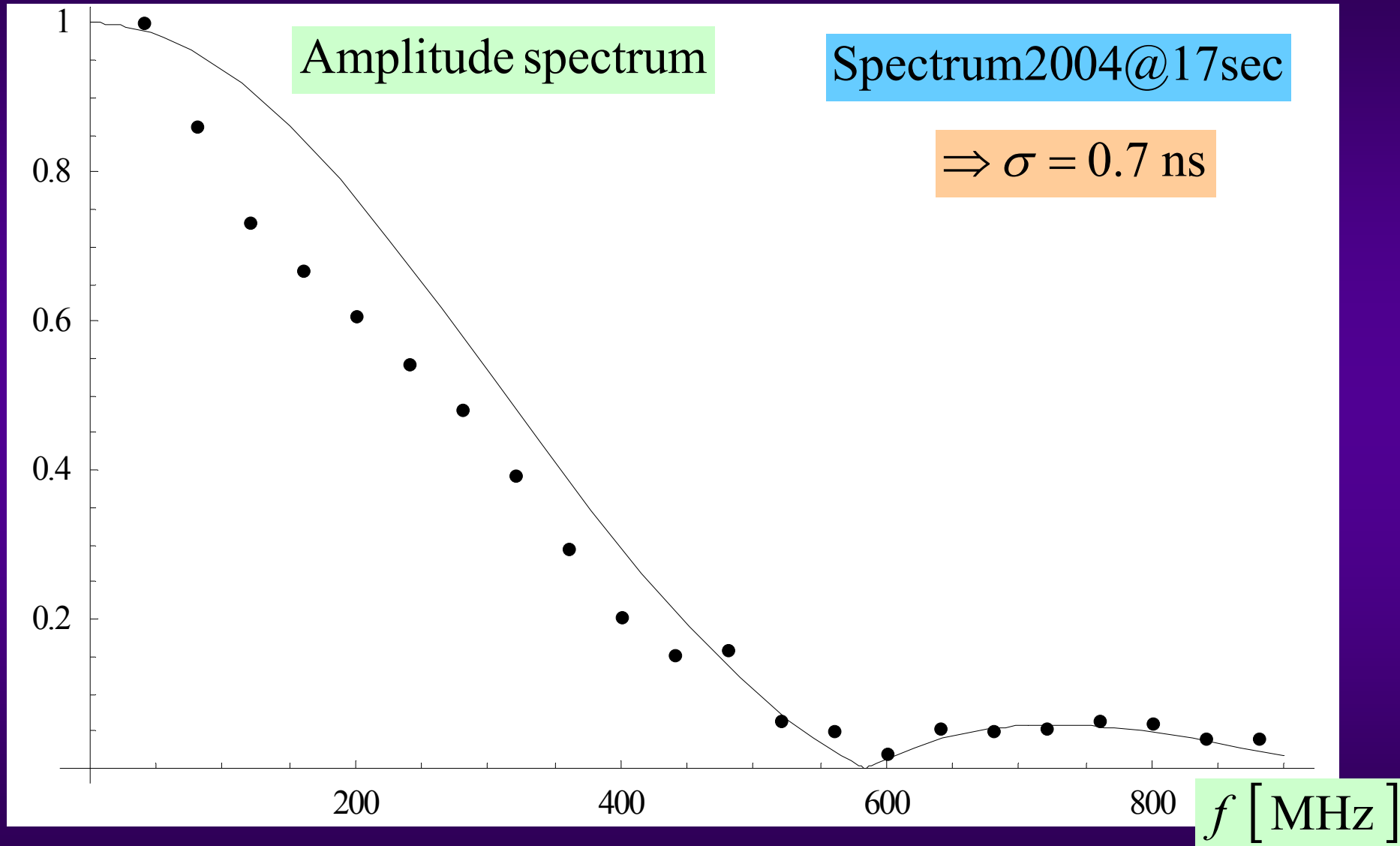
# Comparison with measured spectra in 2003 and 2004 (given by Jan Uythoven $\Rightarrow$ Follow-up of APC 17/09/04) (1/4)



# Comparison with measured spectra in 2003 and 2004 (given by Jan Uythoven $\Rightarrow$ Follow-up of APC 17/09/04) (2/4)



# Comparison with measured spectra in 2003 and 2004 (given by Jan Uythoven $\Rightarrow$ Follow-up of APC 17/09/04) (3/4)





# Comparison with measured spectra in 2003 and 2004 (given by Jan Uythoven $\Rightarrow$ Follow-up of APC 17/09/04) (4/4)

