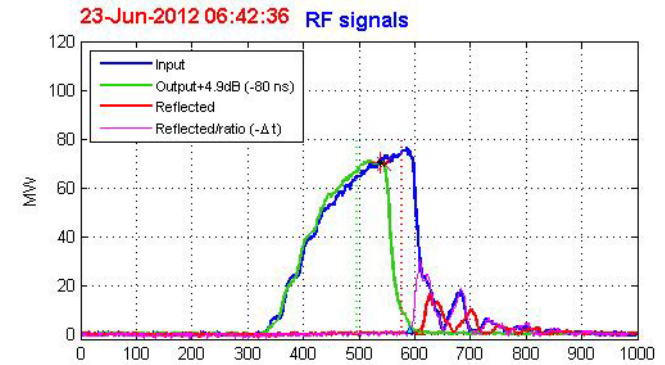
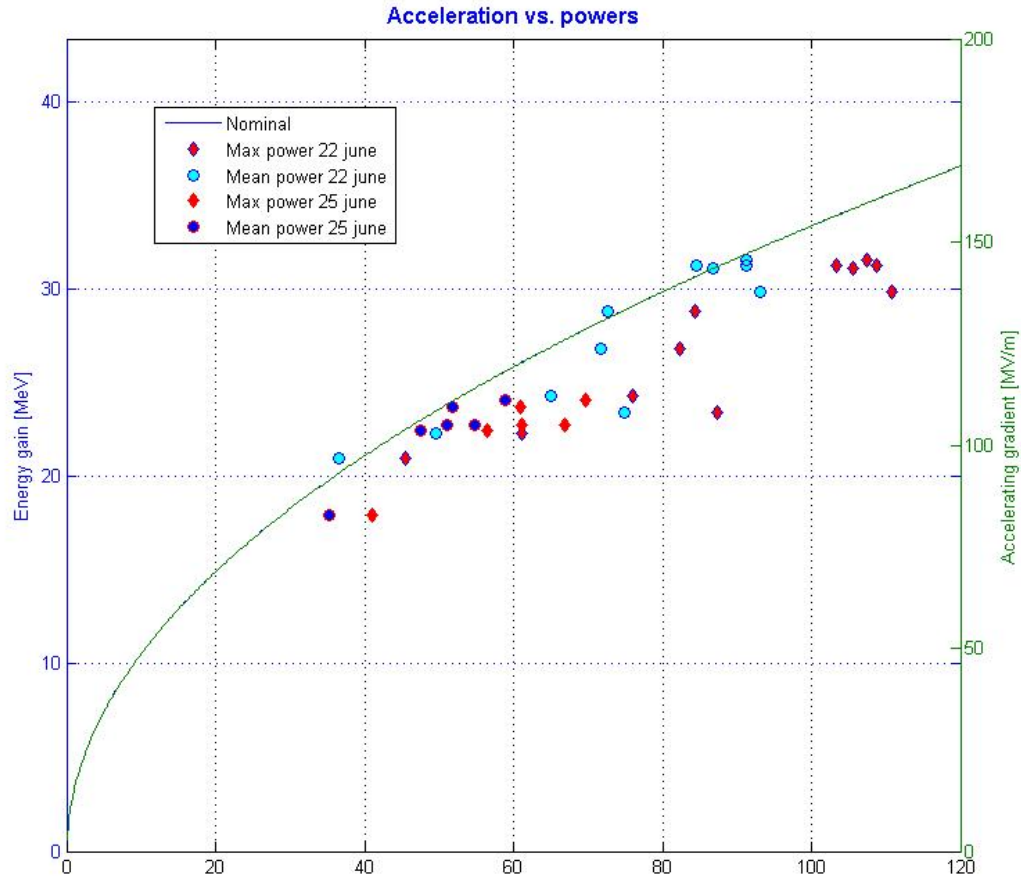


Short overview of experimental program with TBTS

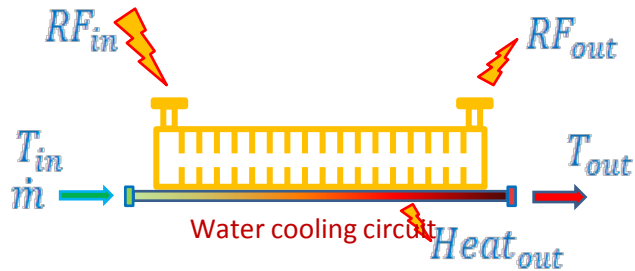
Wilfrid Farabolini and Roger Ruber
for the
TBTS Team

Acceleration vs. RF power



- Acceleration vs. power is close to nominal
- Power to be better processed (not peak nor mean but averaged during a filling time before a short probe beam pulse)
- Still some uncertainties about the RF coupler calibration and reliability (damaged ?)

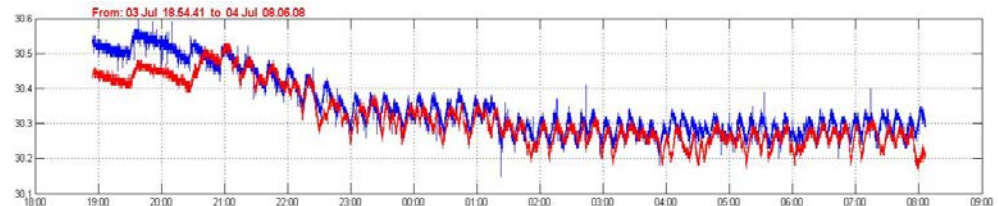
RF power measurements using water temperatures differences and flow



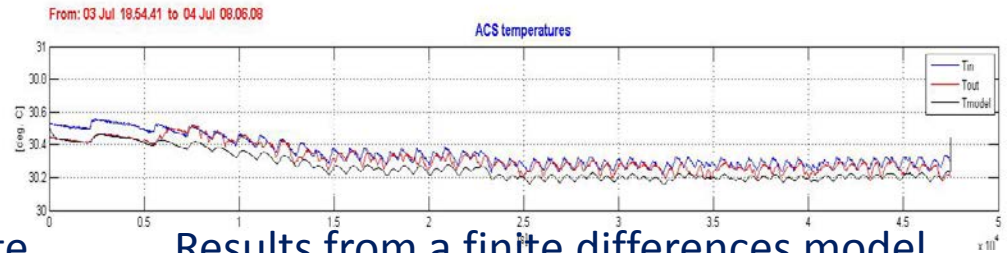
$$\dot{m} = 0.7 \text{ kg min}^{-1}$$

$$P_{mean} = 4 \text{ W} \quad \Delta T = 0.082 \text{ } ^\circ\text{C}$$

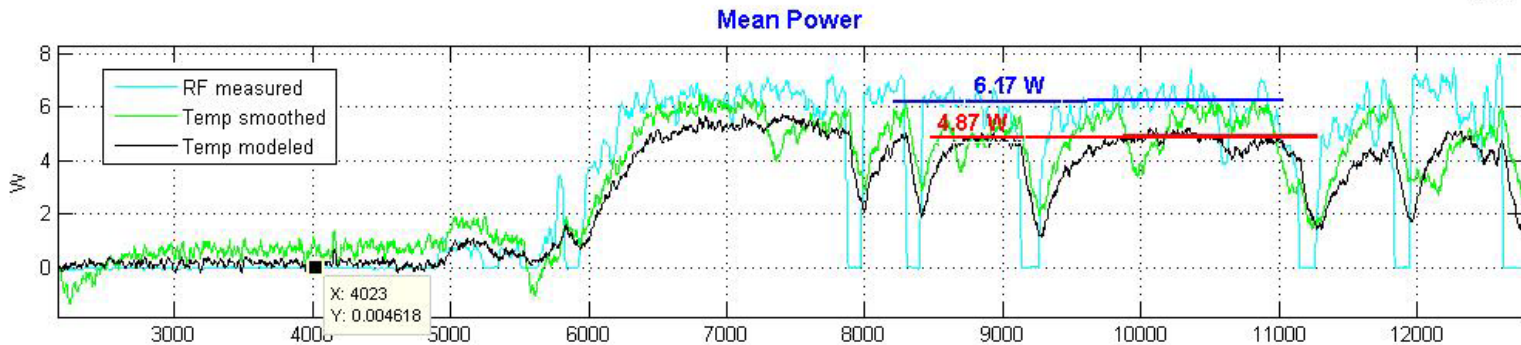
Better accuracy with a higher repetition rate



Raw temperature data from PT100

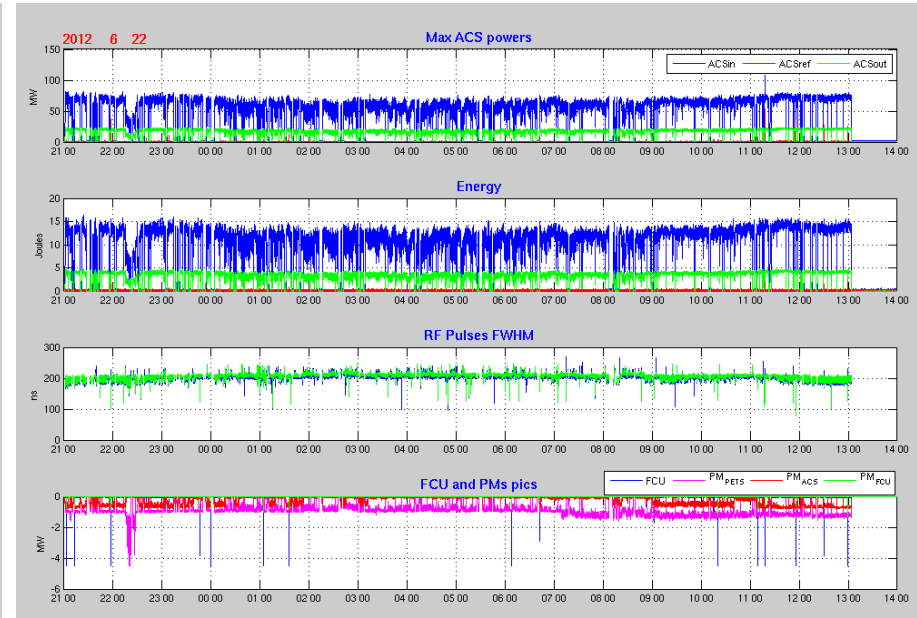
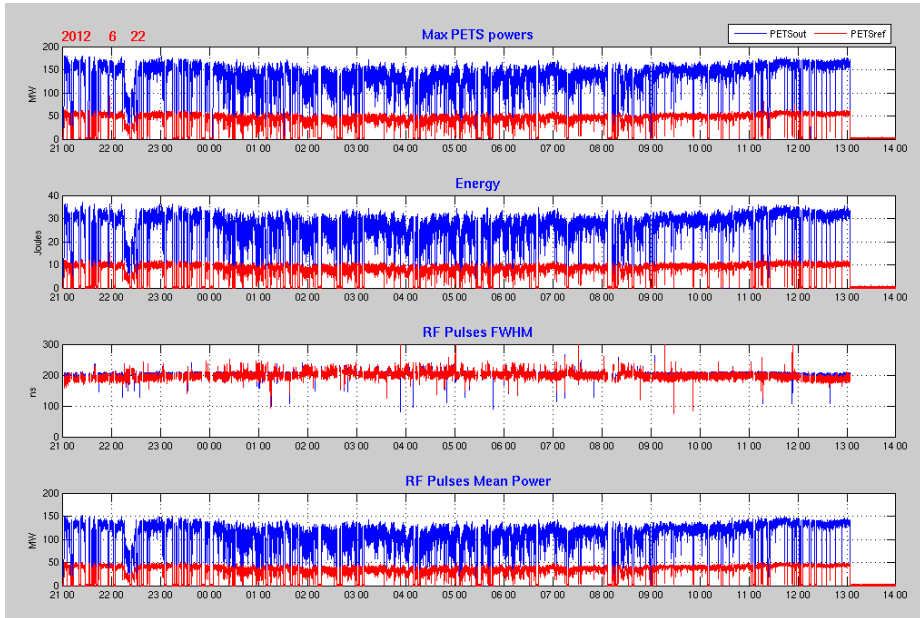


Results from a finite differences model



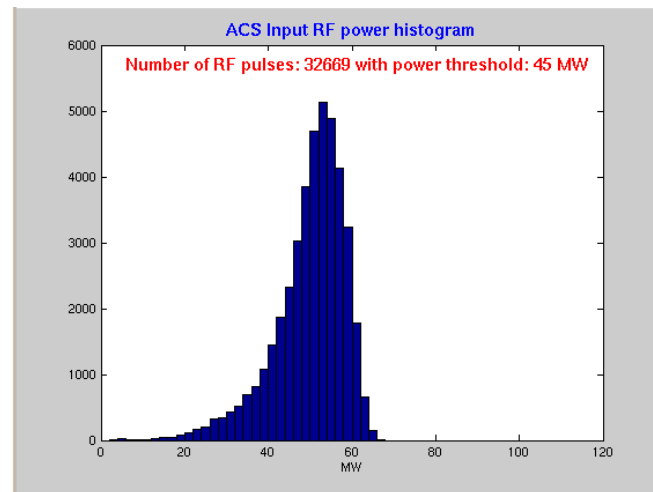
Comparison between calorimetric method and RF couplers: **ratio 0.79**

RF power monitoring

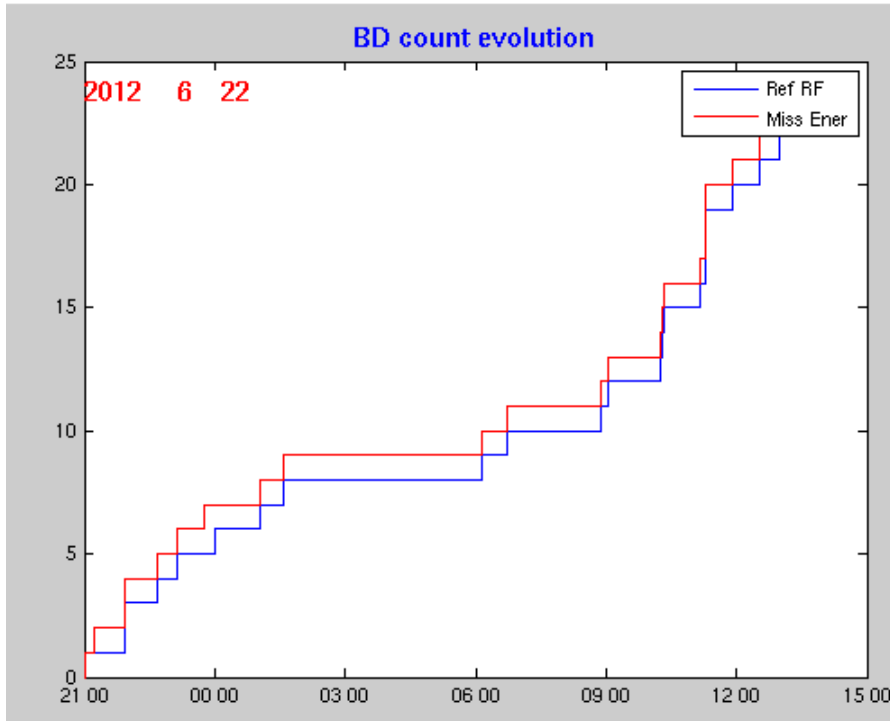


PETS and ACS RF couplers data during 16 hours

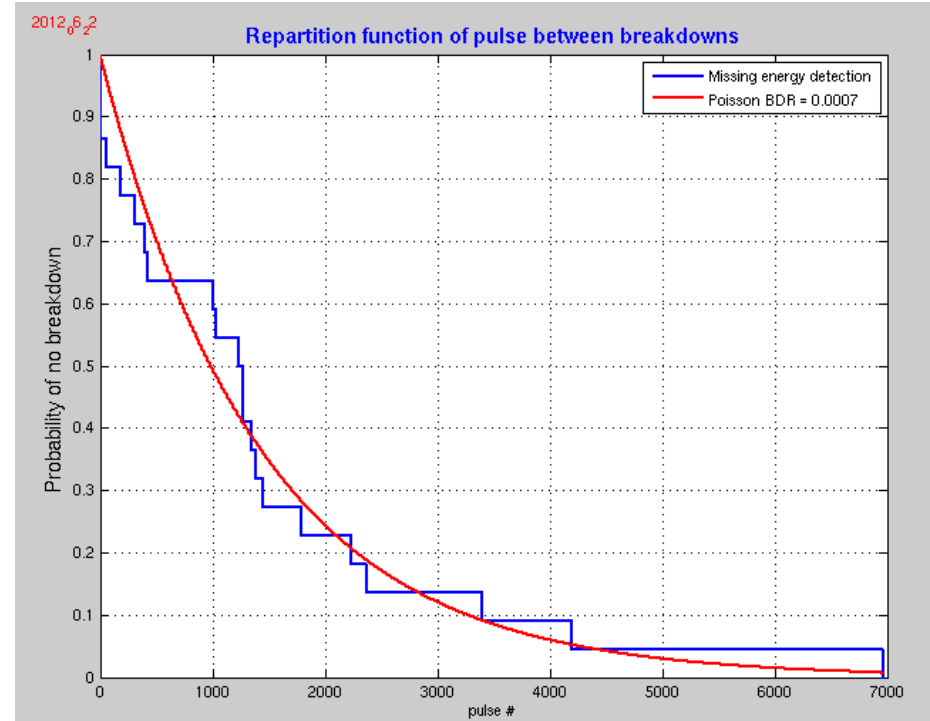
Histogram of ACS power input



BD statistics



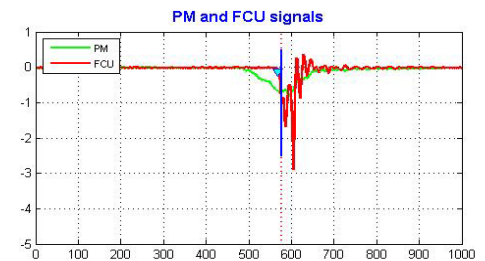
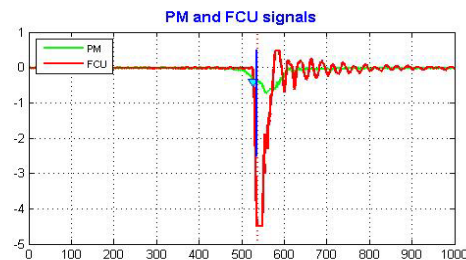
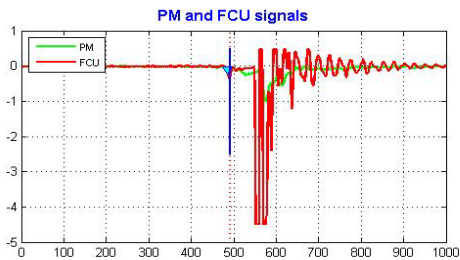
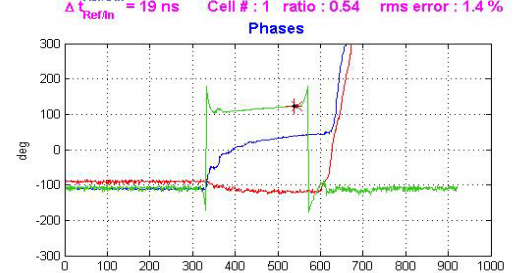
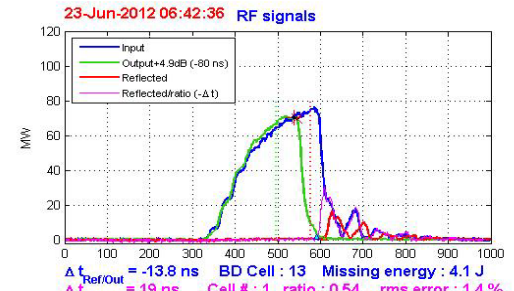
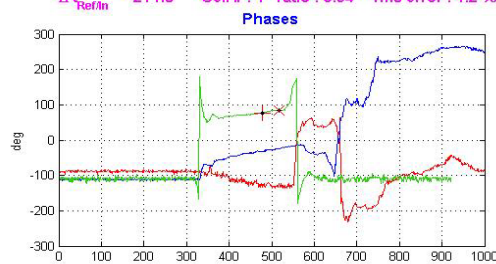
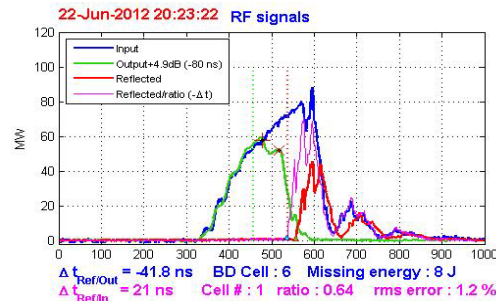
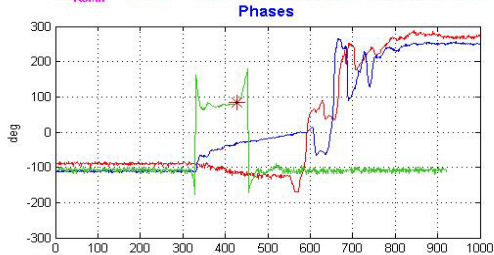
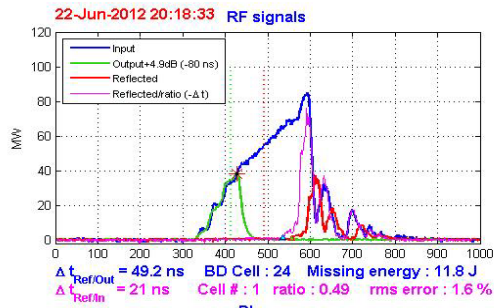
BDs evolution with time



Time between breakdown distribution compared to Poisson law for BDR = 7E-04

Quite period without clusters (moderate RF power: 55 MW)

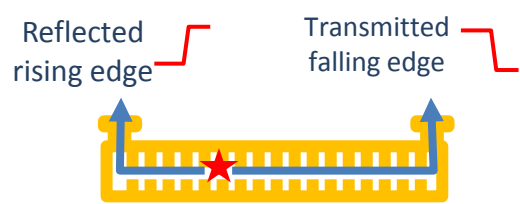
BDs signals analysis



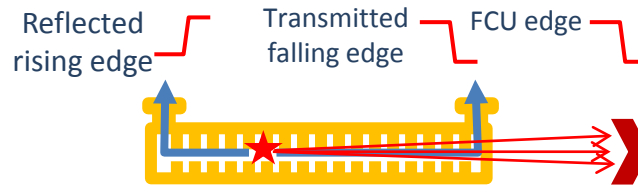
3 different records from the same batch (night of the 22nd June)

Many information to be derived: consistency between BD from RF coupler and FCU edge , phase stability of RF output, phase drift of RF reflected, 2 staged BDs often visible on RF output, correlation RF input / RF reflected after BD, RF input perturbations induced by RF reflected...

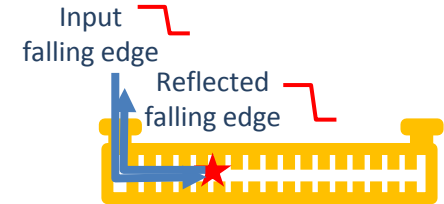
BDs location within ACS



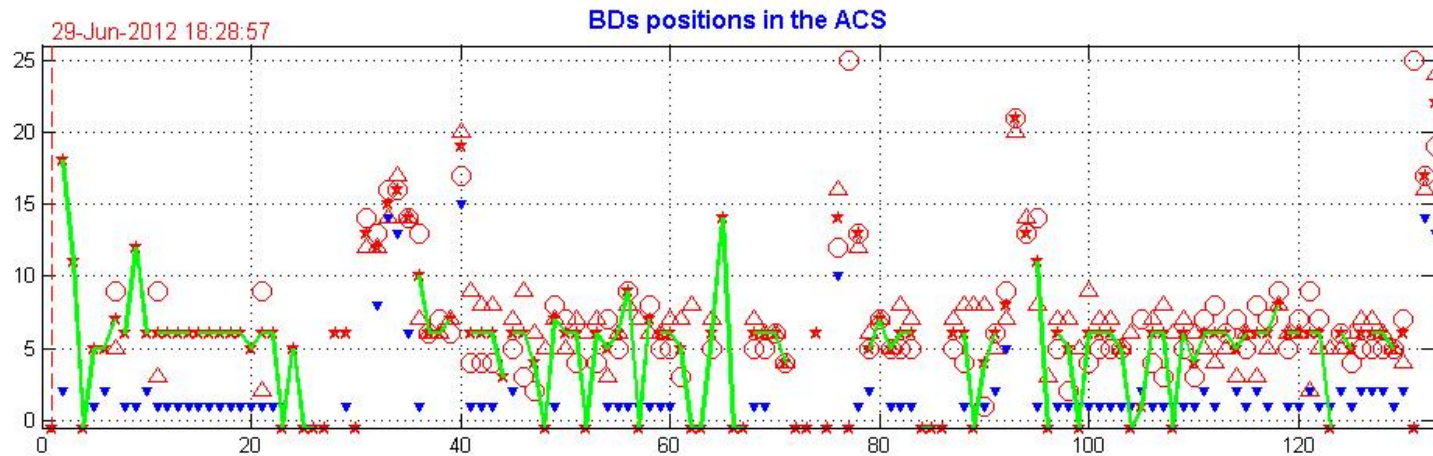
1st method (transmission): looking at BD position when BD strikes



2nd and 3rd methods (combining previous signals with FCU):

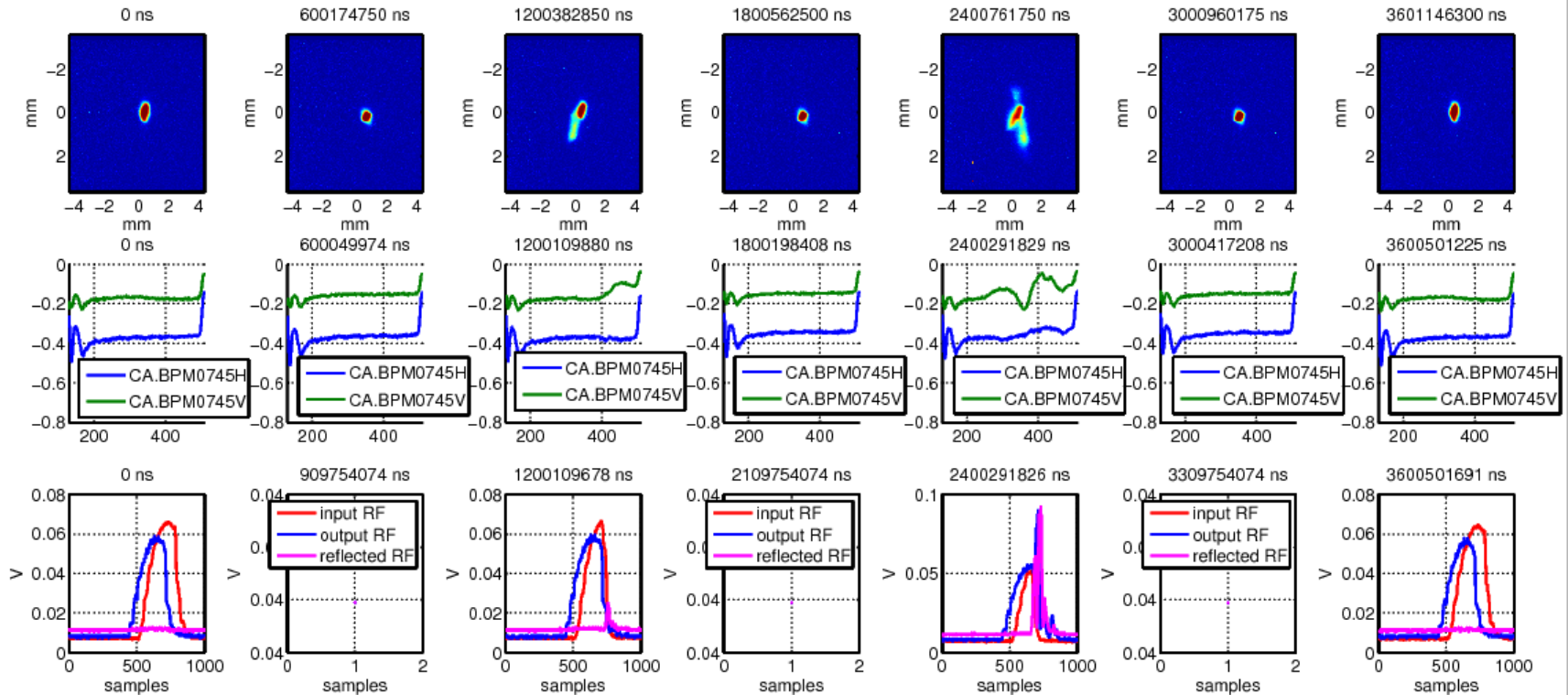


4th method (echo): looking at BD position when RF pulse stops



Cell positions around cell 6 seem more affected, clustered BDs are close in position, first 3 methods give consistent results, method 4 seems to show a BD drift toward the structure input...

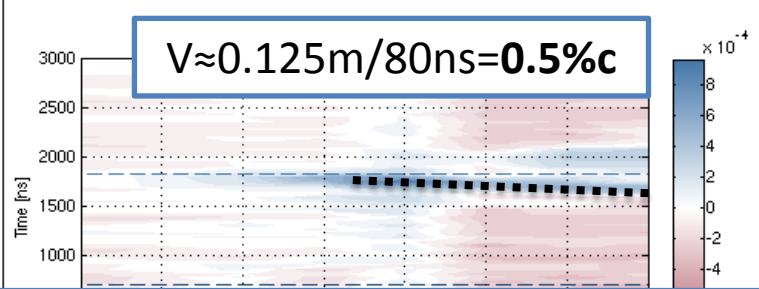
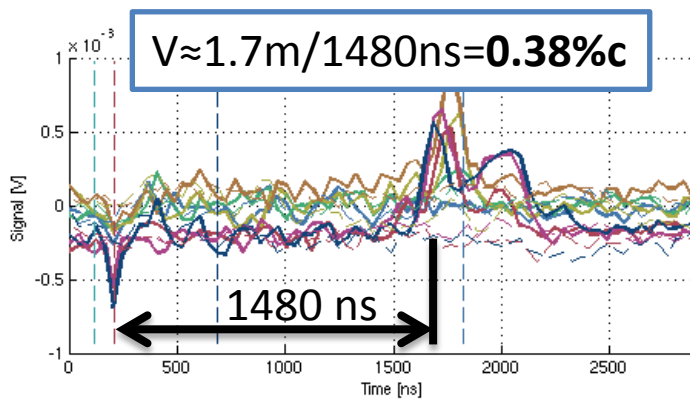
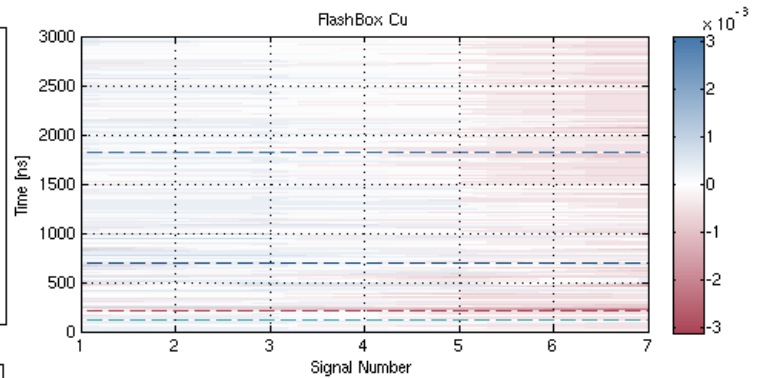
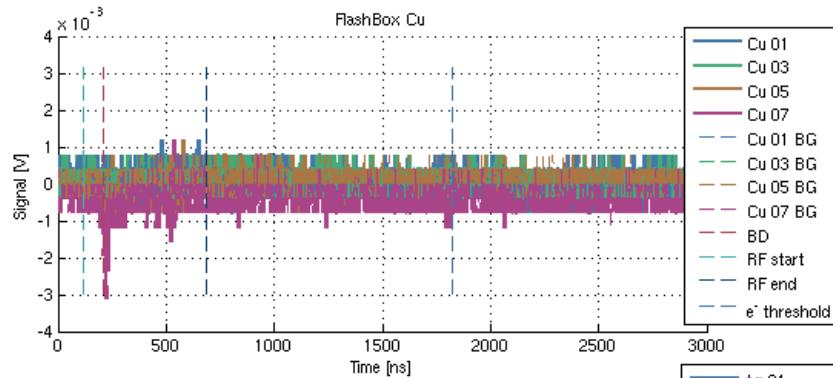
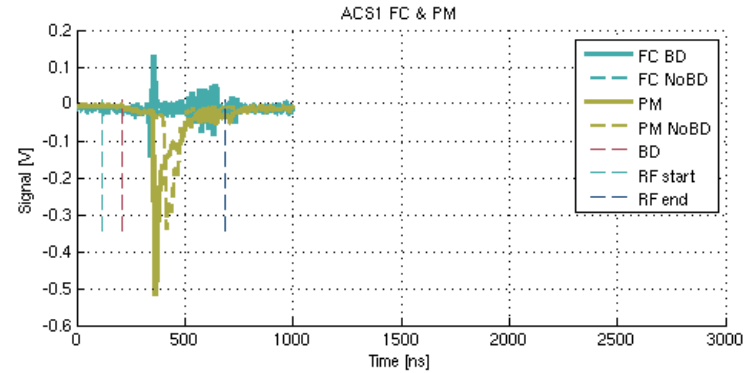
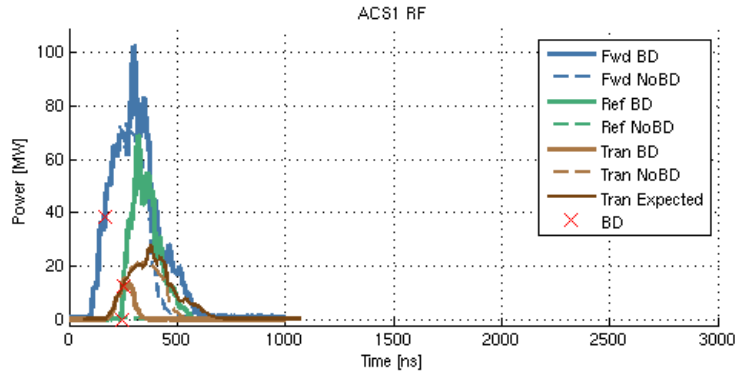
BD beam kicks (Andrea Palaia)



Successive shots around 2 BDs events

Statistical analysis on going (isotropic distribution ?, relation with BDs location and missing energy)

Flash Box results (Alexey Dubrovskiy)



From the magnet: $m/e = 2.1-4.5 \times 10^3 m_e/e^+$
 $\text{H}_2^1, \text{Cu}^{26-29}$ etc