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# Electronics for PARIS

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*foto Paolo Brianzoni*

# Basic requirements for the PARIS electronics

- Serve **a few hundred** detector channels (**energy** and **time** per channel)
- Stand rates up to **100 kHz** per channel
- Deal with **fast signals** of  $\text{LaBr}_3$ : risetime  $\sim 1\text{ns}$ , decaytime  $\sim 20\text{ ns}$
- Perform **pulse shape analysis** for disentanglement of overlapping signals from components of a **phoswitch**
- Provide gamma time and energy relative to an **external signal**
- Keep time resolution better than **1 ns**, for TOF purposes
- Measure energies **1-50 MeV** with **3%** resolution.
- **Trigger less** readout with **timestamping**
- Be compatible with **GTS** based DAQ

# Conclusion from the PARIS meeting in Strasbourg Jan'11

- Successful tests in Strasbourg of deconvolution algorithms for phoswich detectors - Jordanov's trapezoid filter
- Promising results on fast timing from Milano
  - Time resolution of 0.6 ns (3"x3" Labr3, 100MHz FADS)
  - Test with a phoswich needed
- Progress in a design of the NUMEXO2 GANIL board (GTS based)
  - Digitizer mezzanine optimized for EXOGAM and NEDA (250MHz FADC)
  - NUMEXO mezzanine for PARIS

# Today's Program

- Marc Rousseau (Strasbourg) - "Electronic development for Phoswich at IPHC"
- Sergio Brambilla (Milano) - "Milano test setup for Paris phoswich detectors"
- Marcin Jastrzab (Krakow) - "The Phoswich detector and concept of its readout electronics for Paris,"
- Gilles de France (GANIL) - "Status of the EXOGAM2 electronics"