Status of the gamma-ray tracking detector at RCNP

RCNP, Osaka Univ.

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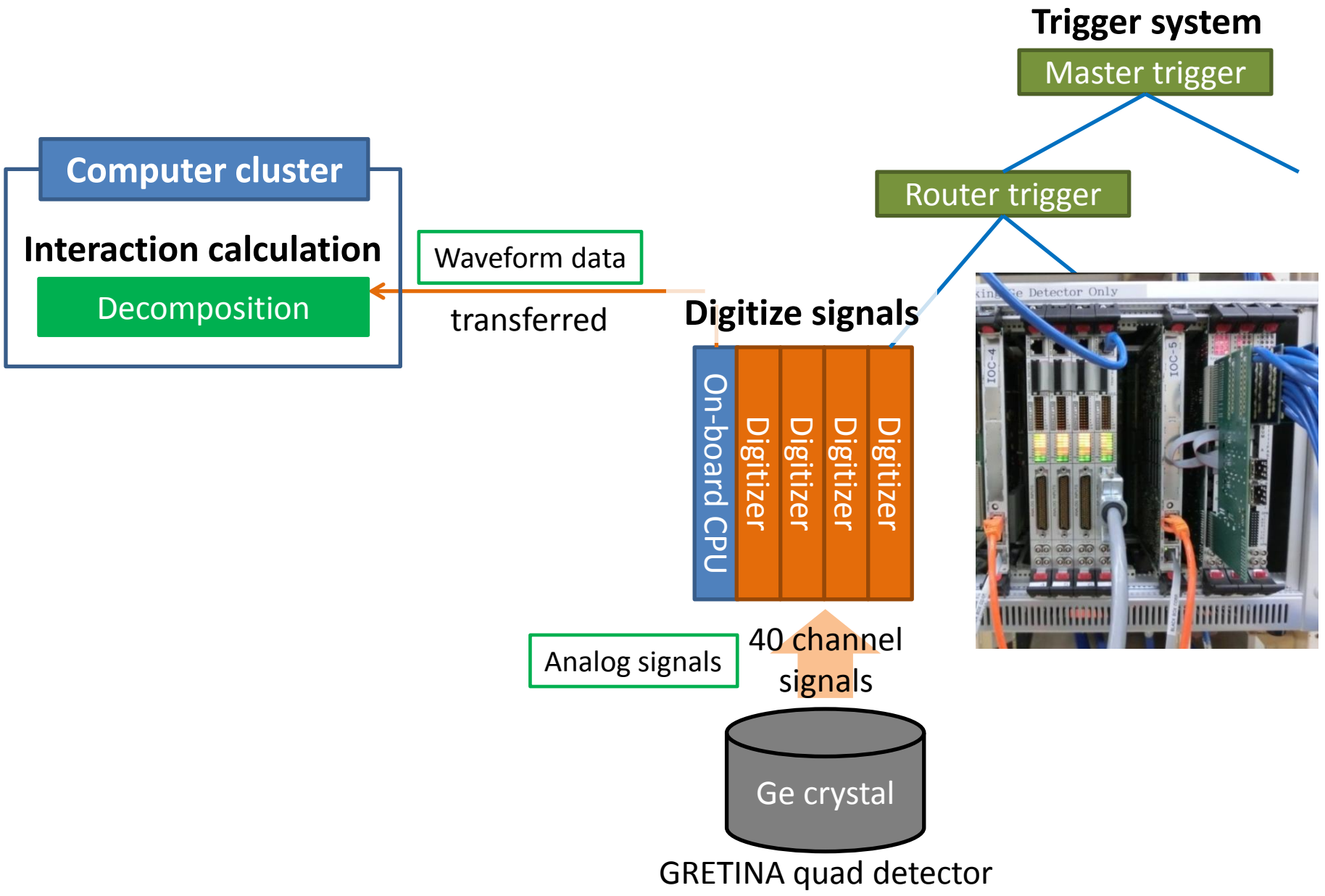
Tracking detector setup



Hardware preparation

	Item	Quantity
Detector part		
✓	GRETINA quad detector	1
✓	HV	4
✓	LV	4
	Cable (+ Radiall box)	4
✓	Chiller	1
	Puller	1
DAQ (waveform acquisition) part		
✓	VME 64x crate	2
✓	VME on-board CPU	5
	Digitizer	16
✓	Trigger module	4
Computer cluster part		
✓	Computer node (8core/2cpu)	9

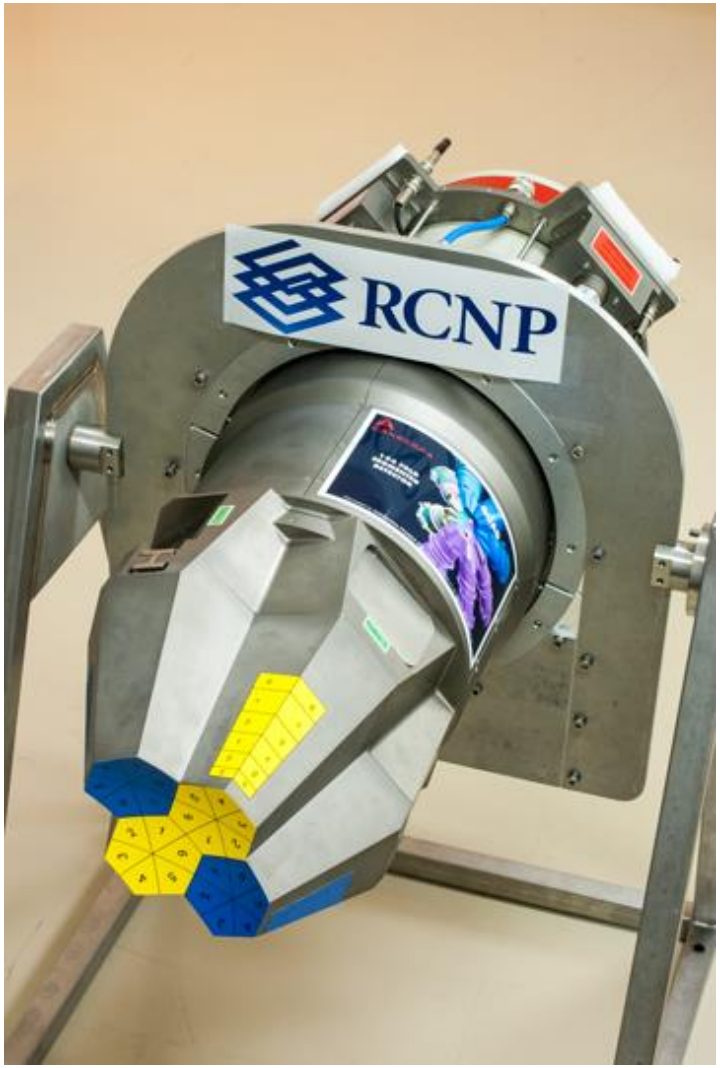
Delivery of a quad module in 2015

Software preparation

	Work
✓	DAQ software installation
✓	On-board CPU configuration
✓	Digitizer firmware update
✓	Trigger configuration

➡ Now ready to take raw data (Mode3)

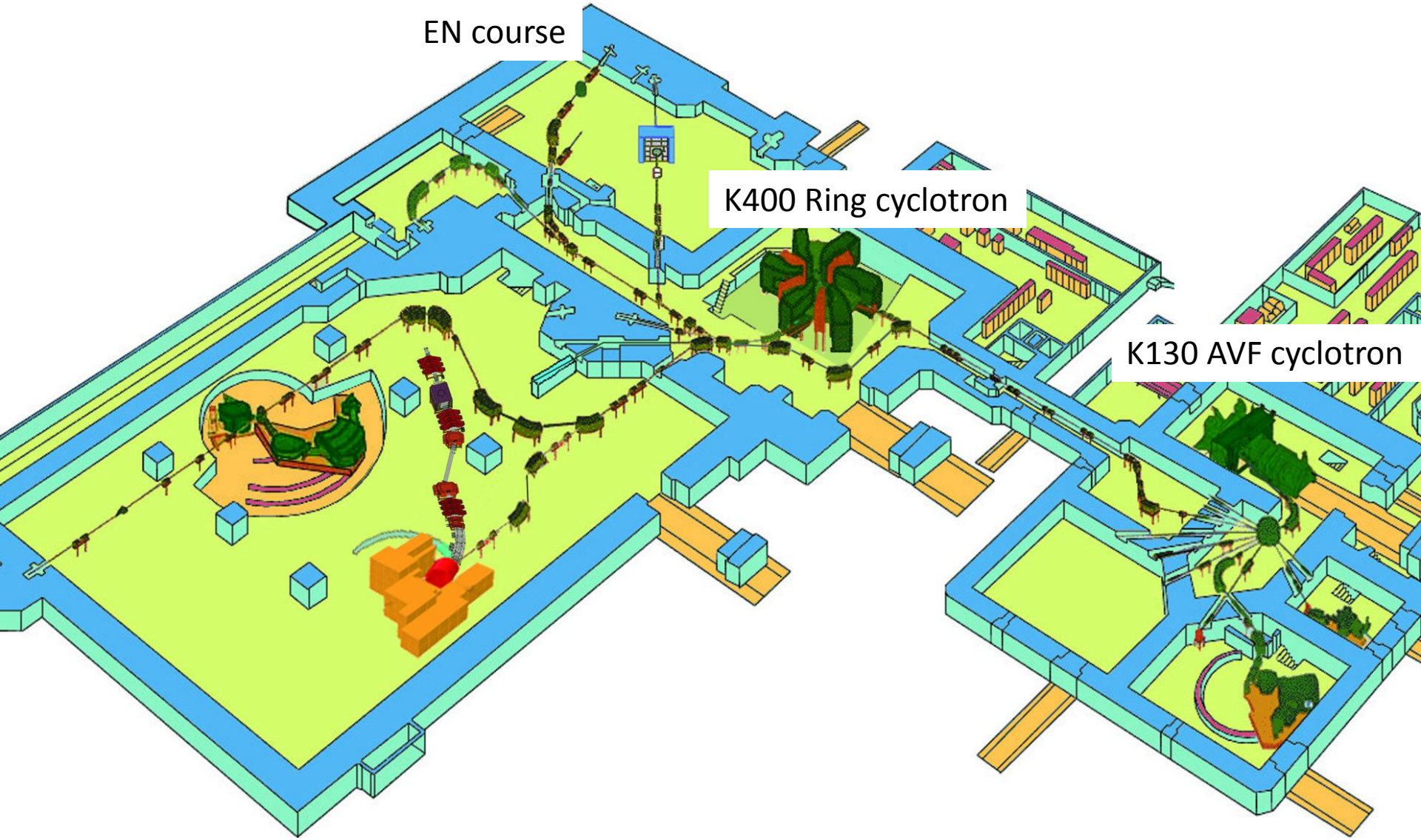
	Familiarize the decomposition (Mode2)
	Familiarize the gamma-ray tracking (Mode1)



To be ready early next year

First physics experiment in next fall

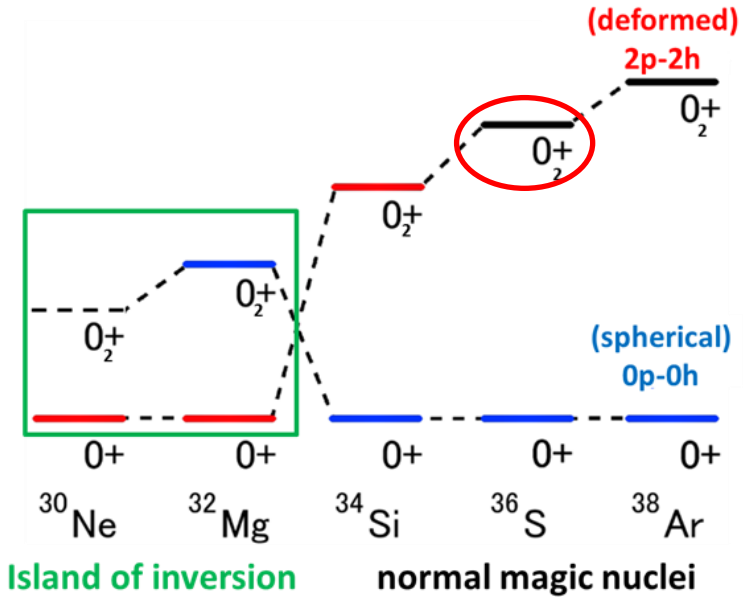
RCNP cyclotron facility

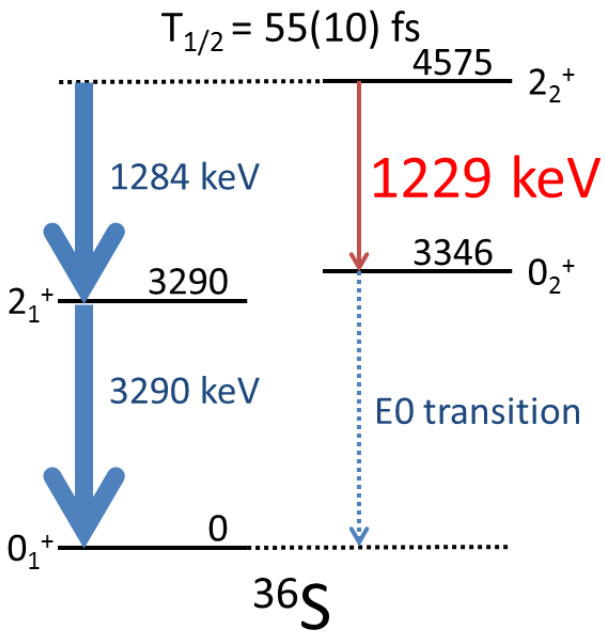


Experiment

- Physics experiment (E486) using a quad module at RCNP in fall 2017
- Search for the "non-inverted" deformed state in ^{36}S
  - Explore the mechanism of transition of the ground state into the 2p-2h state from the 0p-0h state
- Measure the branching ratio:

$$R\left(\frac{2^+_2 \to 0^+_2}{2^+_2 \to 2^+_1}\right)$$ to obtain B(E2: $2^+_2 \to 0^+_2$)





Summary

- A quad module was delivered in 2015.
- Almost ready to take raw data (Mode3).
- Try to familiarize the decomposition and the gamma-ray tracking.
- Physics experiment will be performed in fall 2017.

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