

# Recent Developments around ARC

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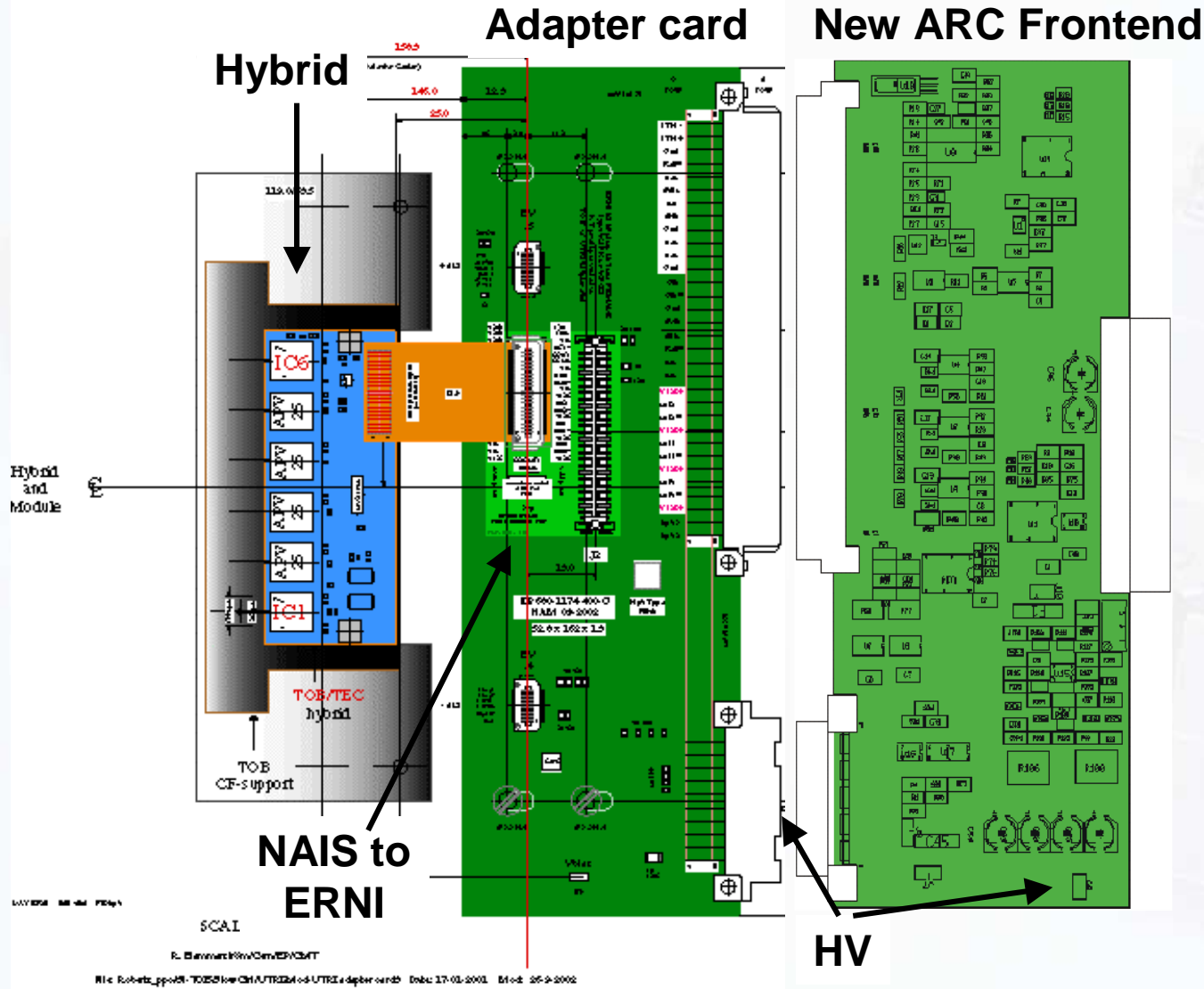
**III. Physikalisches Institut B**

**RWTH Aachen**

- New Frontend
- News concerning the ARCS software
- Pinhole search à la Karlsruhe
- Discussion about LED Controller

- Difficulty:
    - CMS like system and ARC system need different connections, especially when connected to modules
    - Grounding of the set-ups (ARC, carrier plates, ...) implemented individually (comparability of results?)
  
  - Solution:
    - New ARC-Frontend compatible to
      - 1) *FE-Hybrid to UTRI/TEST Adaptercard* by R.Hammerström
      - 2) Vienna Cold Box (?)
- as long as pin assignment remains fixed

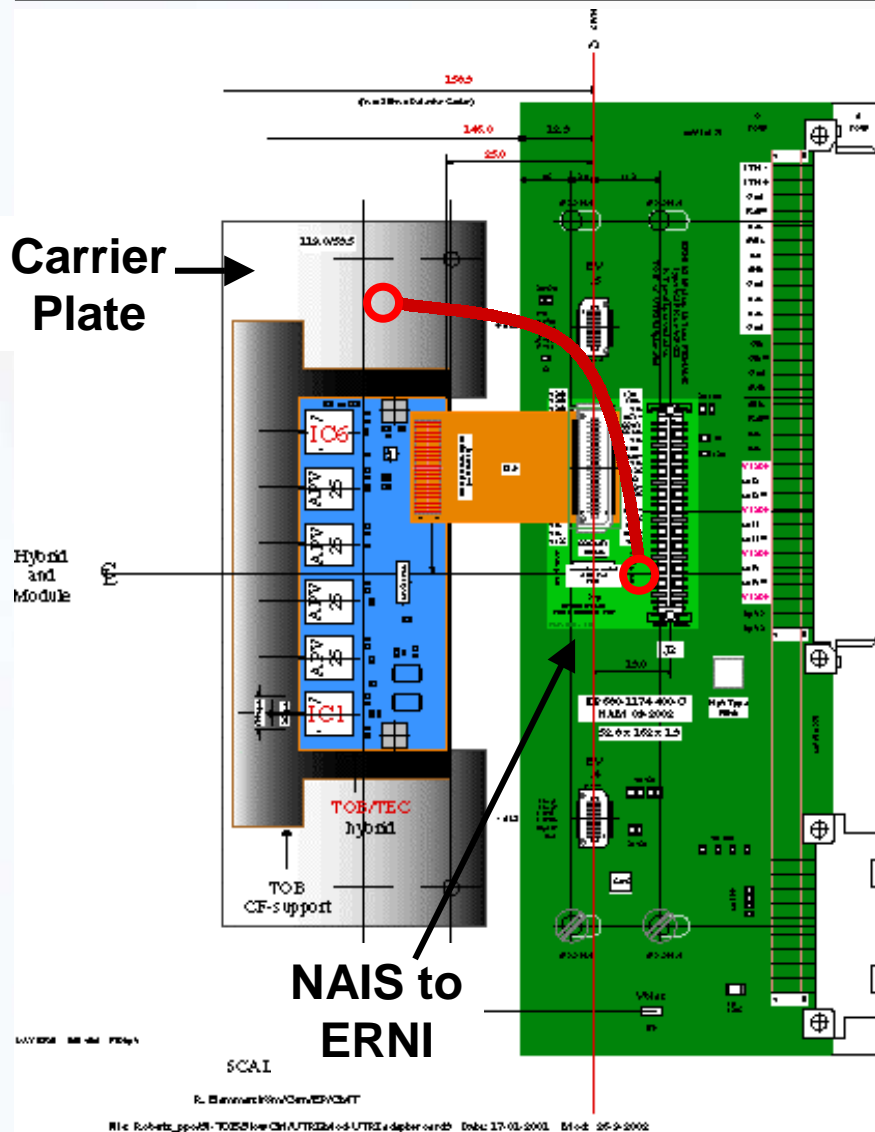




Also new:

- Allows readout of module thermistor
- Allows backplane pulsing via ARC-Board  
(requires ARC firmware update)
- Improved I<sup>2</sup>C-level shifter
- Bias voltage via Frontend
- ERNI connector for hybrid test

- Price: 125 -135 €(previous version 118 €)
- Time estimate:
  - $\approx$  6 weeks after confirmation of pin assignment
- **New Frontend is mainly foreseen for module tests**
  - Previous version still suited for hybrid test
  - Previous version suited for module test but more complicated (e.g. HV, grounding), no backplane pulsing, no thermistor measurement, no ERNI connection
  - Old ARC board compatible with new Frontend (no backplane pulsing)
  - Updated ARC board compatible with previous Frontend



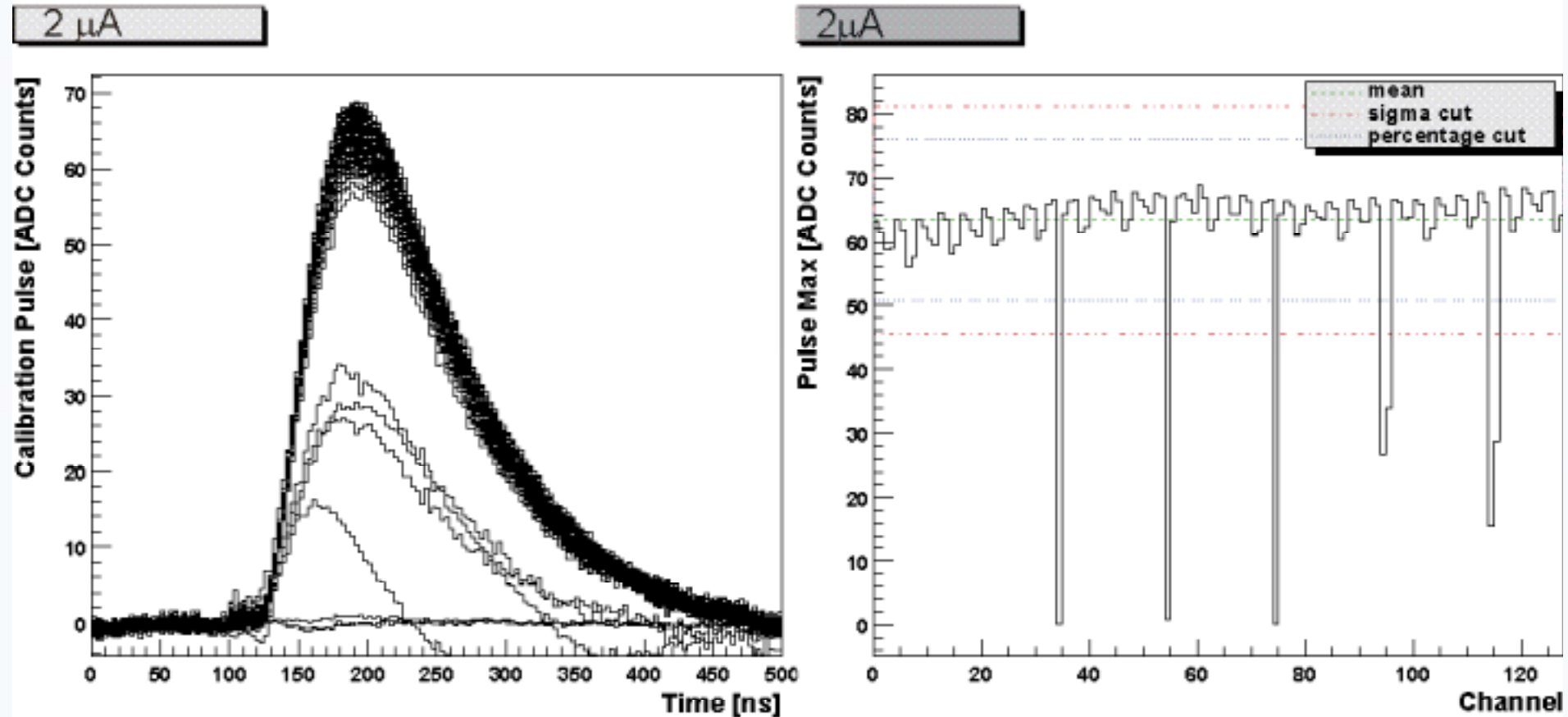
- Proposal:  
Grounding from *NAIS* to *ERNI card* to *carrier plate* should be foreseen if possible on both sides
- Connection for humidity sensor is foreseen on front end
- Other features necessary / wanted ?



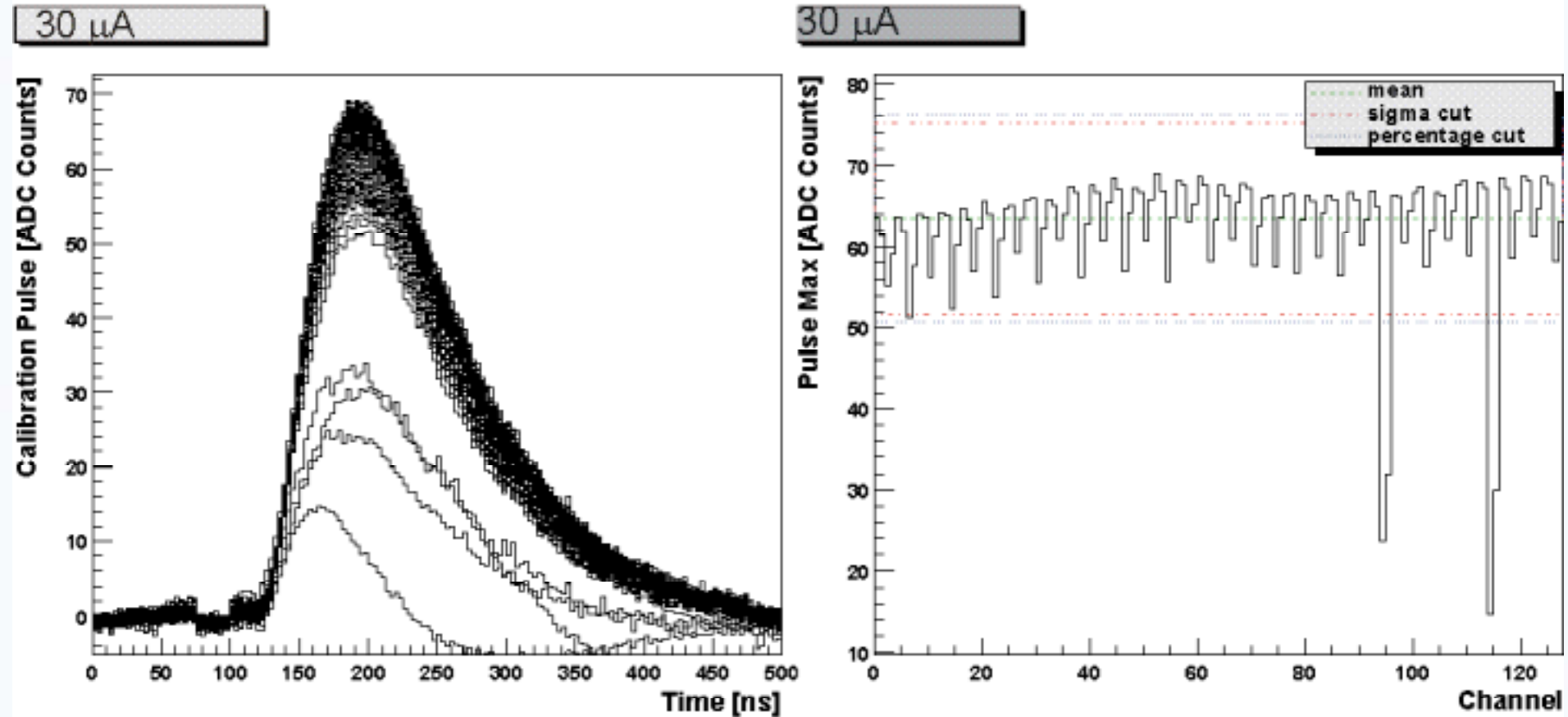
# News concerning the ARC Software

- ARCS now also available for Windows 2000, NT and XP  
(thanks to Leonard Christofek, FNAL)
- Database connection  
⇒ see talk Andreas Nowack

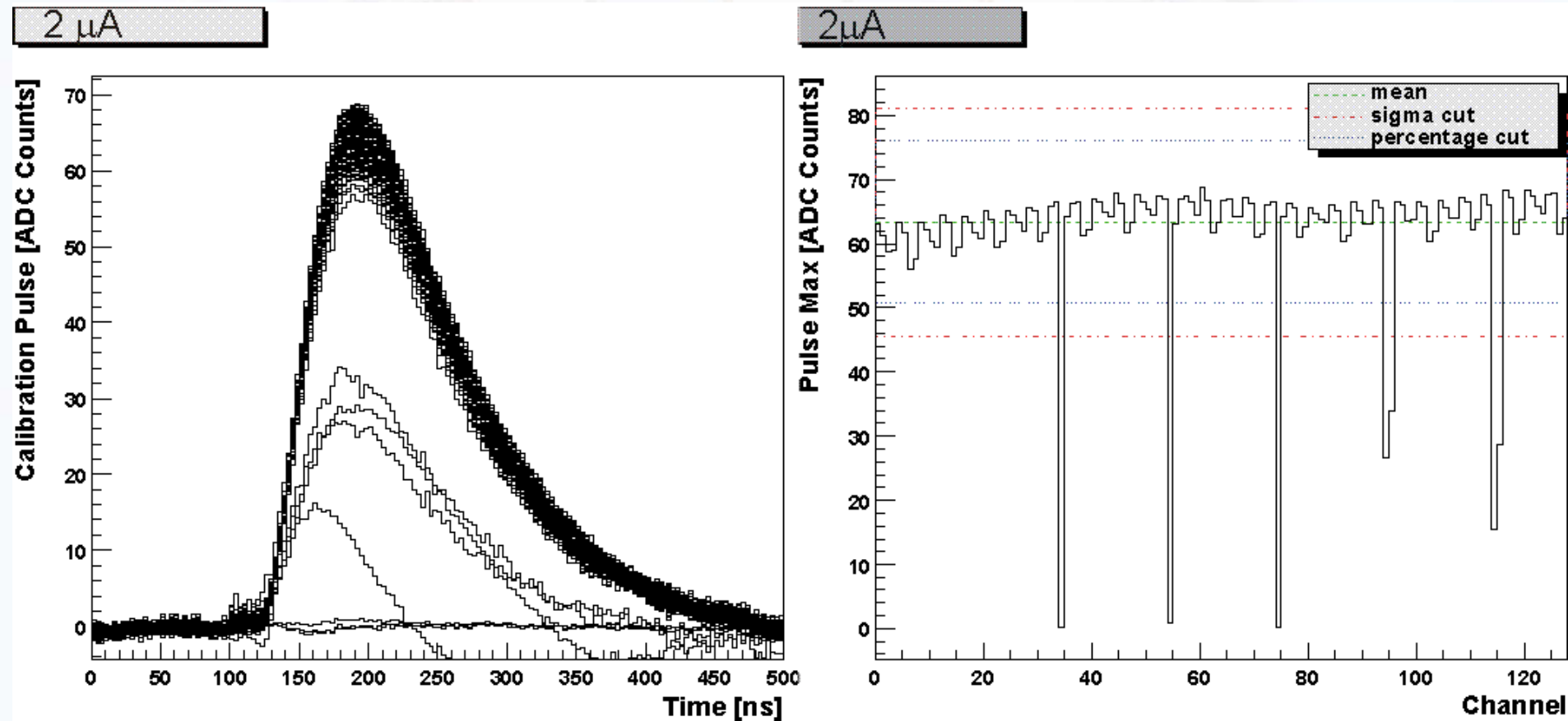
- Repetition of pinhole search as proposed by Karlsruhe was successful

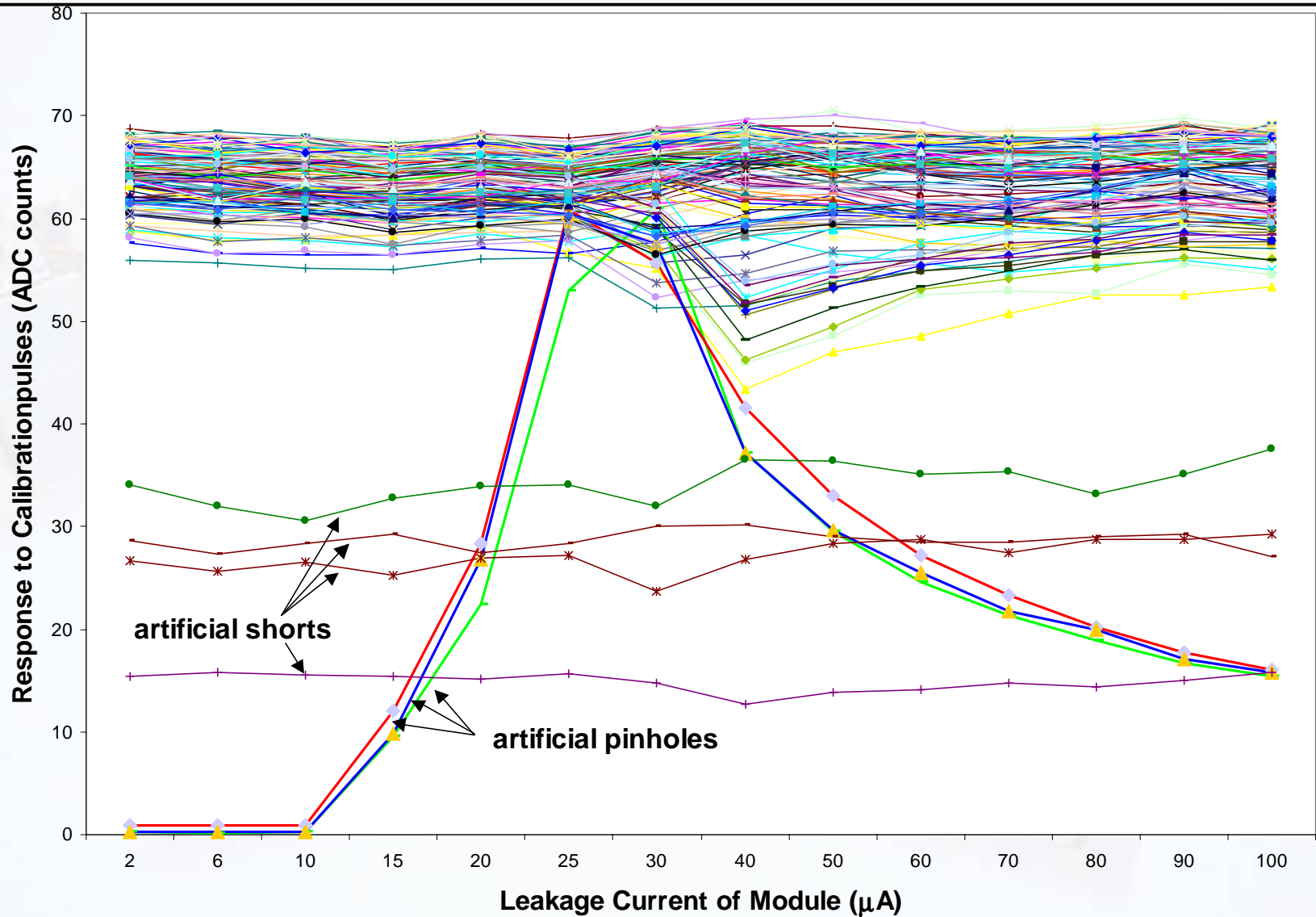


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Module	Channel	Noise		Pulse Shape				LED Test		Visual Inspection	Description Karlsruhe
		higher	lower	rise time		maximum		signal			
				shorter	longer	higher	lower	higher	lower		
7	-	-	-	-	-	-	-	-	-	-	(Vienna)
12	511	x		x		x			x	missing bond	} lost in cooling tests
	442	x		x		x			x	open bond	
	431		x	x			1/2		x	-	
	430	x		x			1/2		x	-	
	375	x		x		x			x	open bond	
	371	x		x		x			x	open bond	
	346	x		x		x			x	open bond	
	344	x		x		x			x	open bond	
	209		x			?		?	x		
13	-	-	-	-	-	-	-	-	-	-	(Vienna)
17	443	x		x			1/2		-	-	} short on hybrid
	442	x		x			1/2		-	-	
	93	x		x			1/2		-	-	
	92	x		x			1/2		-	-	
20 (PSI)	6	x		x		x			x	open bond	
22	318	x		x		x			x	missing bond	missing bond
23 (PSI)	412	x		x		x			x	?	} artificially bonded
	350		x		-		0		x	bonded pinhole	
	330		x		-		0		x	bonded pinhole	
	310		x		-		0		x	bonded pinhole	
	290	x		x			1/2		x	bonded short	
	289		x		x		1/2		x		
	270		x		x		1/2		x		
	269	x		x			1/2		x	bonded short	
26	480	x		x		x			x	missing bond	
27	248	x		x		x			x	missing bond	} pinhole (unbonded)
	93		x		-		0		x	pinhole	
29	189	x		x		x			x	missing bond	} pinhole
	7		x		-		0		x	pinhole	
48	9	x		x		x			x	missing bond	pinhole (unbonded)
56 (PSI)	486	x		x		x			x	open bond	
	307	x		x		x			x	open bond	

## Expressline tests: Result table

# Discussion: LED Pulser

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	307	x		x		x			x	open bond	

LED test was redundant in the expressline tests



# Karlsruhe LED Pulser

- Karlsruhe LED pulser is existing and tested
  - ⇒ pinhole search for many modules successful
  - ⇒ developed to be compatible with the CMS like system
- Adaption of Karlsruhe LED pulser to ARCS probably possible (requires additional hardware change and manpower)
- No cross calibration necessary
- Institutes have to buy only one LED pulser (if module tests with both systems are foreseen)

- Is existing, tested and long since integrated in the ARCS software
  - ⇒ all results of the expressline tests gained with that system
  - ⇒ due to light fibres completely decoupled electronically
  - ⇒ system suited for pinhole search
- Lack of manpower is to be expected soon
- Main goals of ARCS development are currently
  - Automation of pinhole test
  - Automation to a complete hybrid / module test
  - Database connection
- Electronics development (F. Beissel) busy with new Frontends and HV board
- But free capacities in the workshops
- Cross calibration should be possible