

COUNT(**BCAL Modules**)=20

A year has past!



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university of regina, on behalf of the GlueX-Regina Team

*presented at the GlueX Collaboration Meeting, held at the University of Regina on september 09, 2010*

current team members:

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past team members:

[J. Chan](#), [B. Giesbrecht](#), [A. Heinrichs](#), [B. Leverington](#), [K. Janzen](#), [L. Sichello](#), [Y. Sun](#), [K. Vuthitanachot](#),  
[A. Watson](#)

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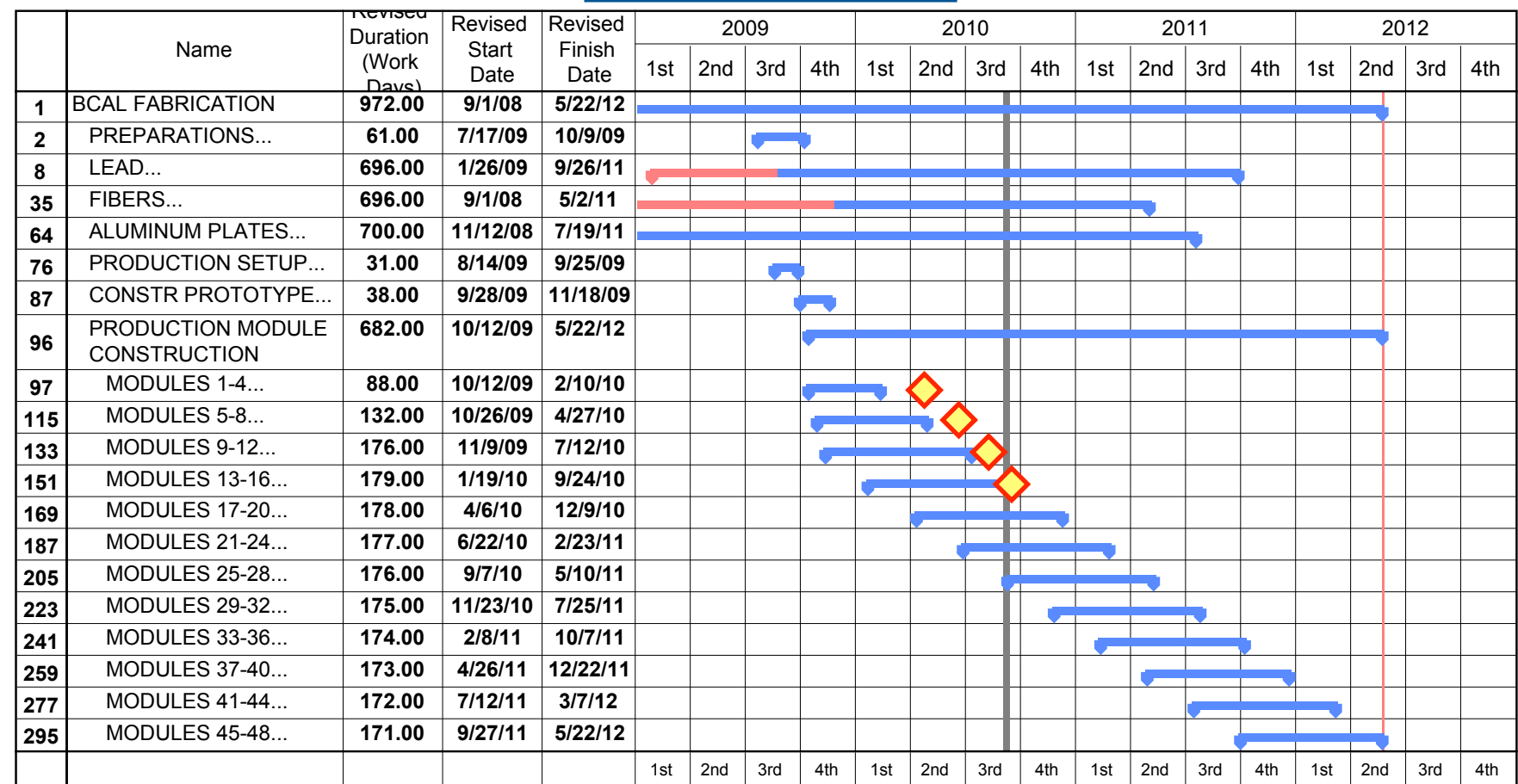
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- 📌 schedule & status quo
- 📌 **fibres: QA testing**
- 📌 **matrix construction**
  - 📌 progress
  - 📌 procedures
  - 📌 transmission uniformity
- 📌 simulations
- 📌 summary

# schedule

## FastTrack

- **Project Progress - smooth**
  - Build & fibre testing
  - Ross Machine Shop (RMS)
  - Logistics, Reporting & Invoicing
- **Production Modules:**
  - **4th Delivery:**
    - FastTrack: Sep 24, 2010
    - **Actual: Sep 16, 2010**
- **Timetable:**
  - **WE'RE ON SCHEDULE**
  - project "float": at present we're not using any!



◆ Actual delivery to JLab

# fibre QA tests

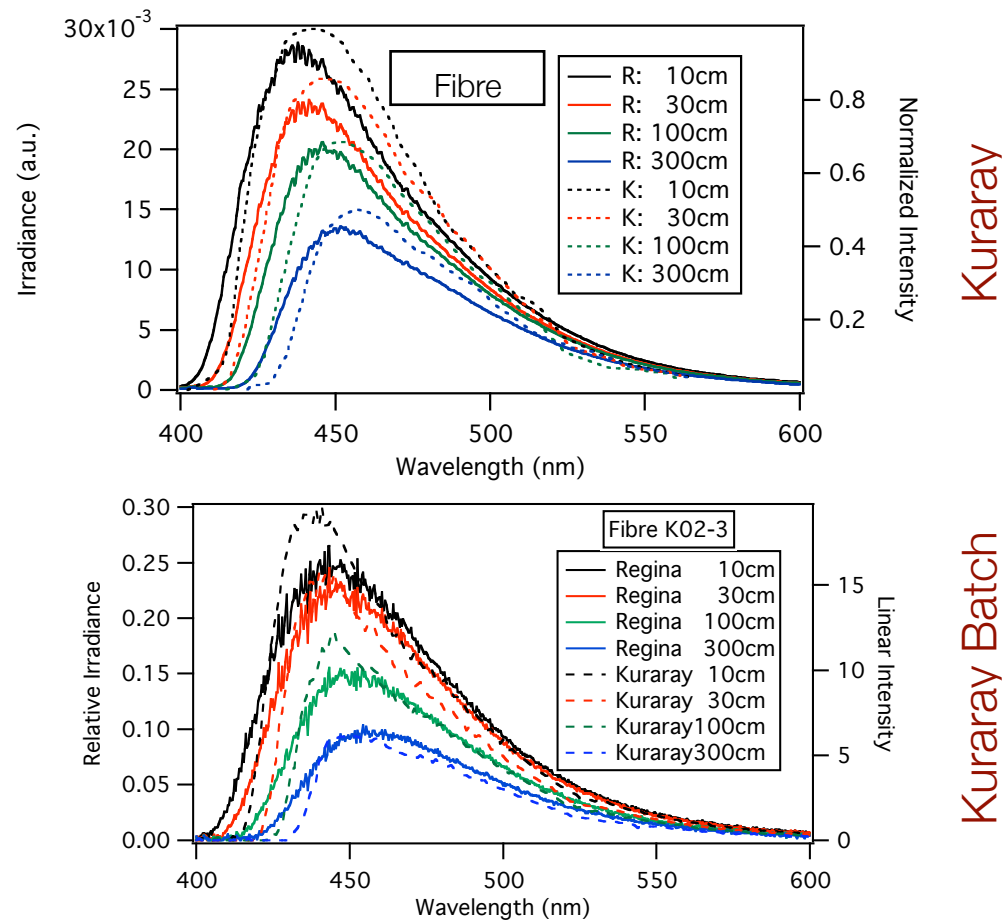
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- First Article: bench reference
- Production:
  - ☒ Condition/packaging (checklist, pictures)
  - ☒ Diameter, Spectral Response
  - ☒ Attenuation length: LED, photodiode current
  - ☒  $N_{pe}$  at 200cm:  $^{90}\text{Sr}$ , PMT, external trigger
- Contract Specifications:
  - ☒ Diameter: 1.00mm, RMS<2%
  - ☒ Attenuation length: >300cm, RMS<10%
  - ☒ Light output: >3 p.e., RMS<15%

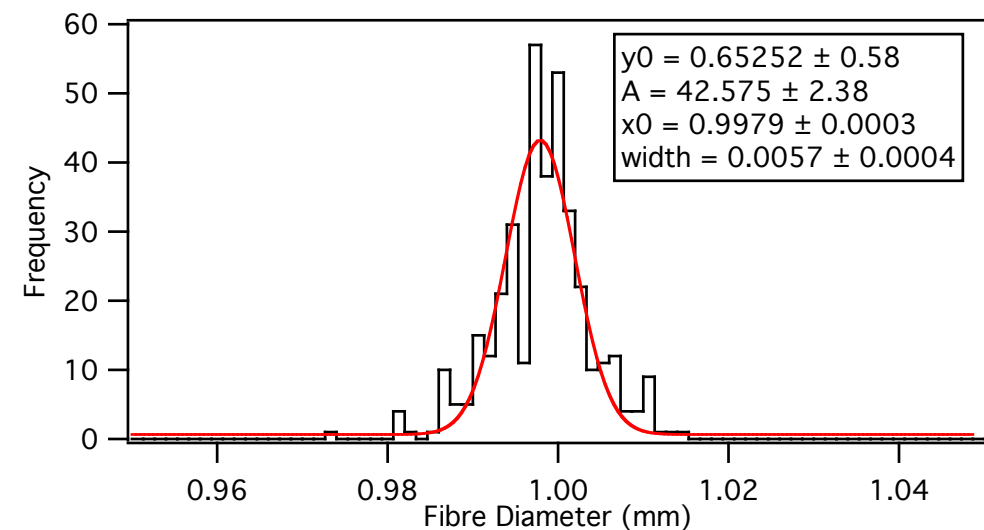
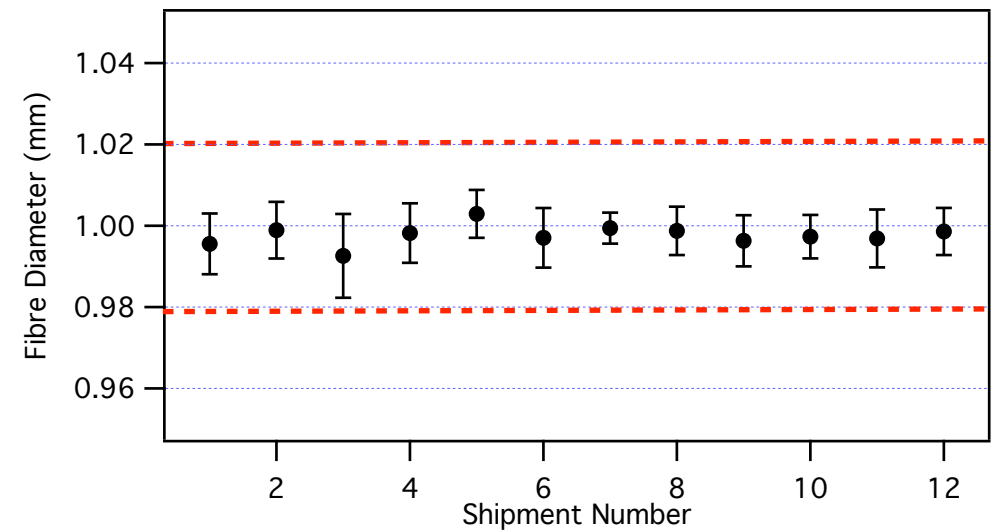
- 16 shipments:  
Nearly 460,000 fibres on hand (~60% of total no)!
- 30-40 fibres per day at each station
- Updated Goal: test ~0.5% of fibres from each shipment

# fibre spectral response & diameters

- qualitatively the spectra measured at Regina agree with the Kuraray data
- integrals are close, but shapes are different; response is acceptable and scales by distance in a similar fashion

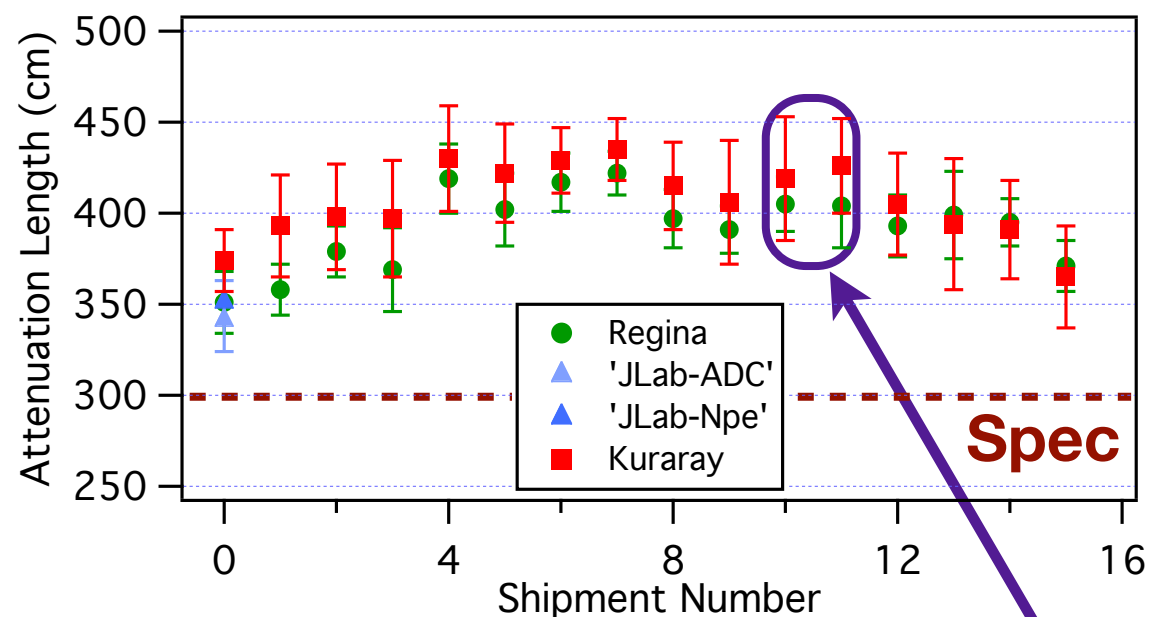
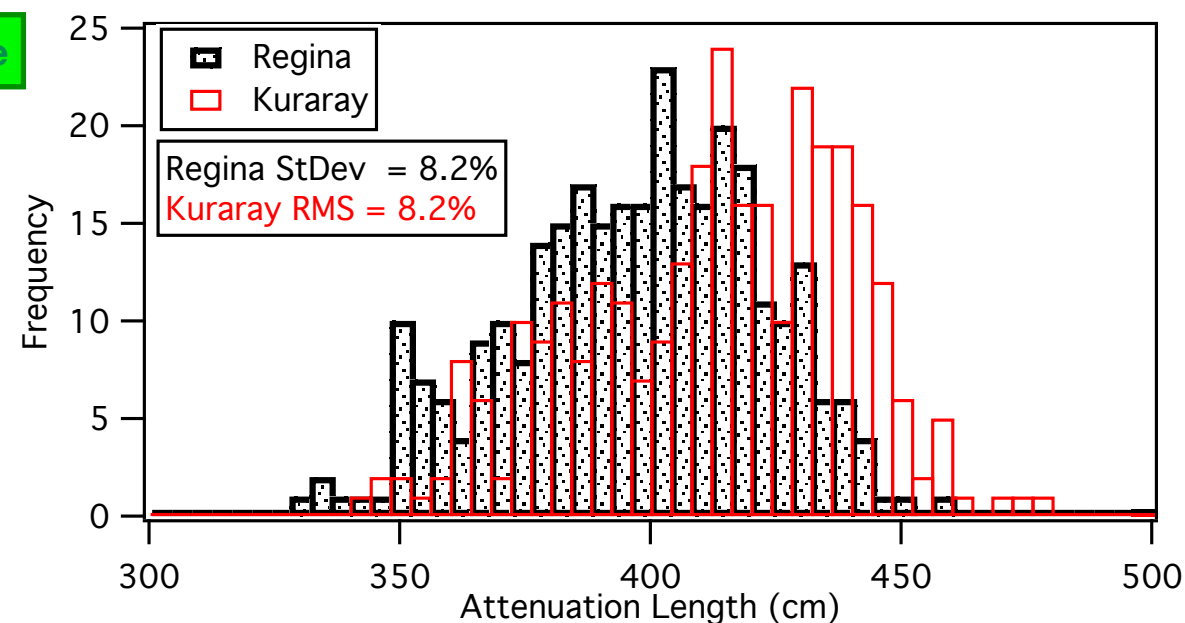
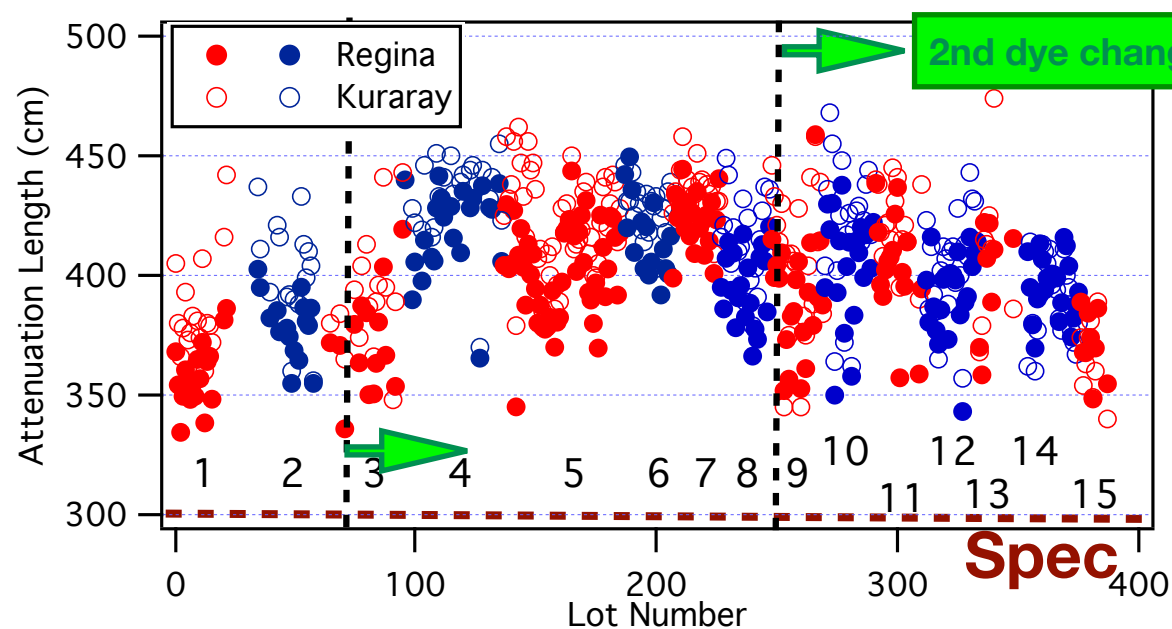


- diameter: within specs

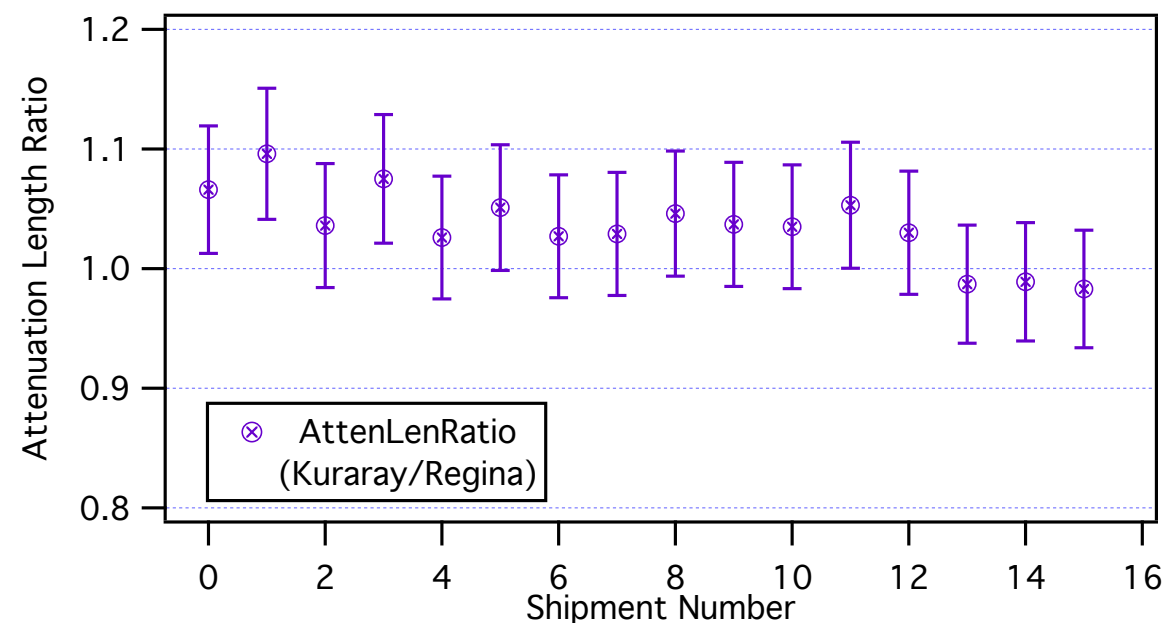




# fibre attenuation length

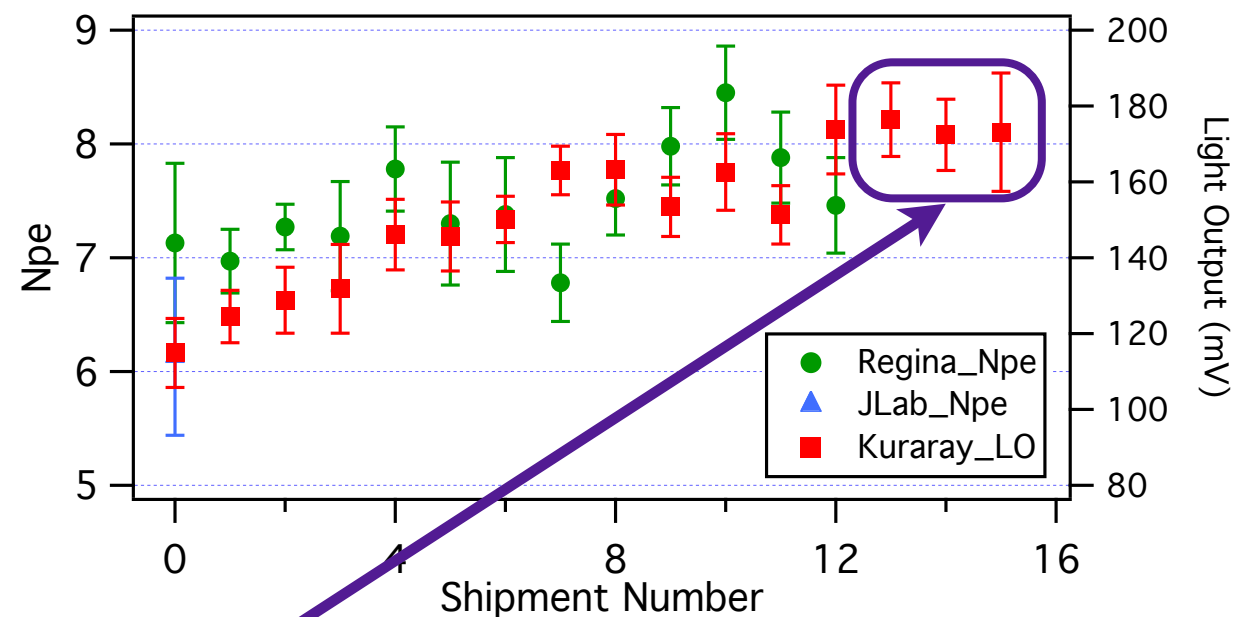
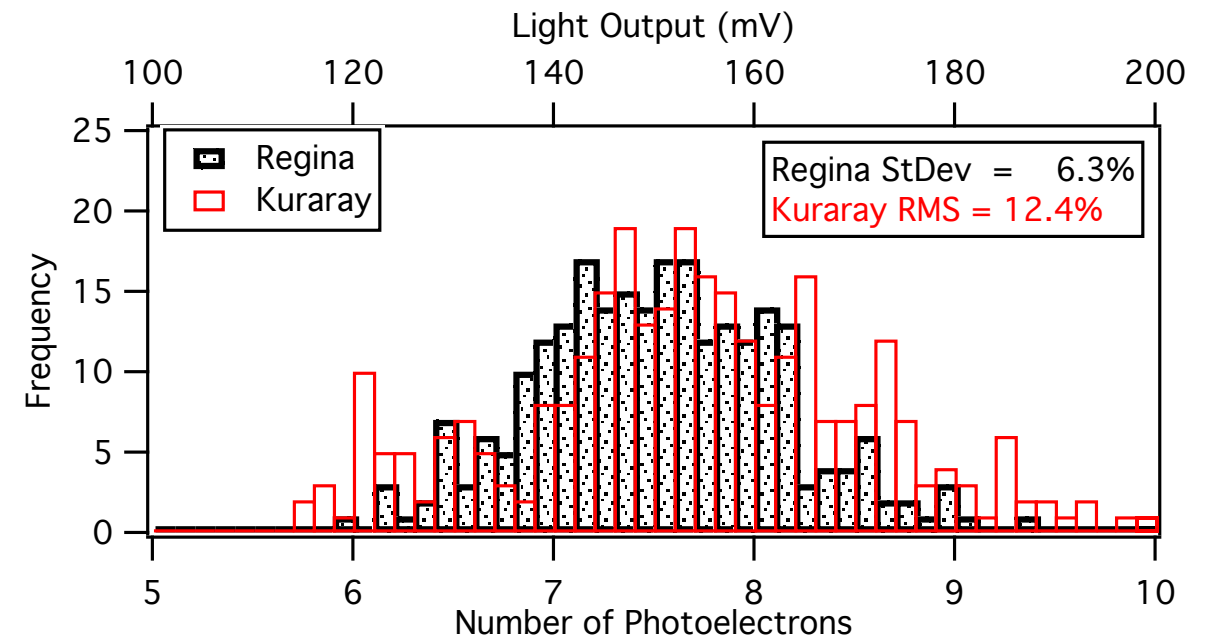
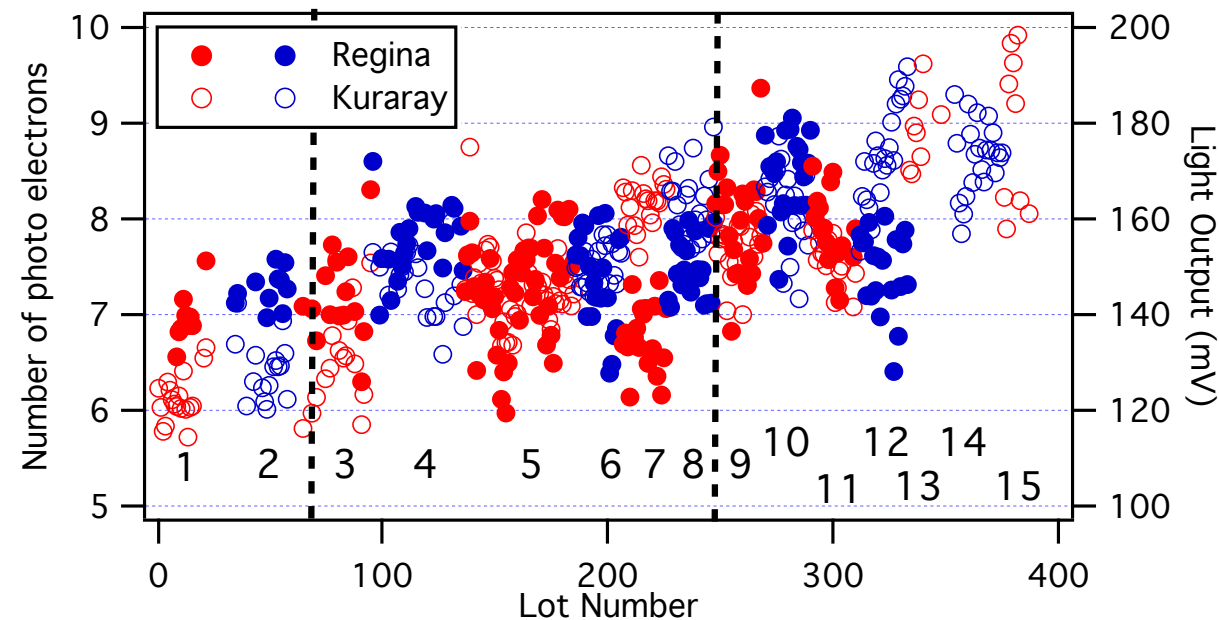


Shipment 10,11:  
Kuraray no. was  
high; error in end  
treatment; rectified



Per lot and shipment change;  
but Kuraray and Regina track  
... and fibres meet specs

# fibre light output



Methods are very different:

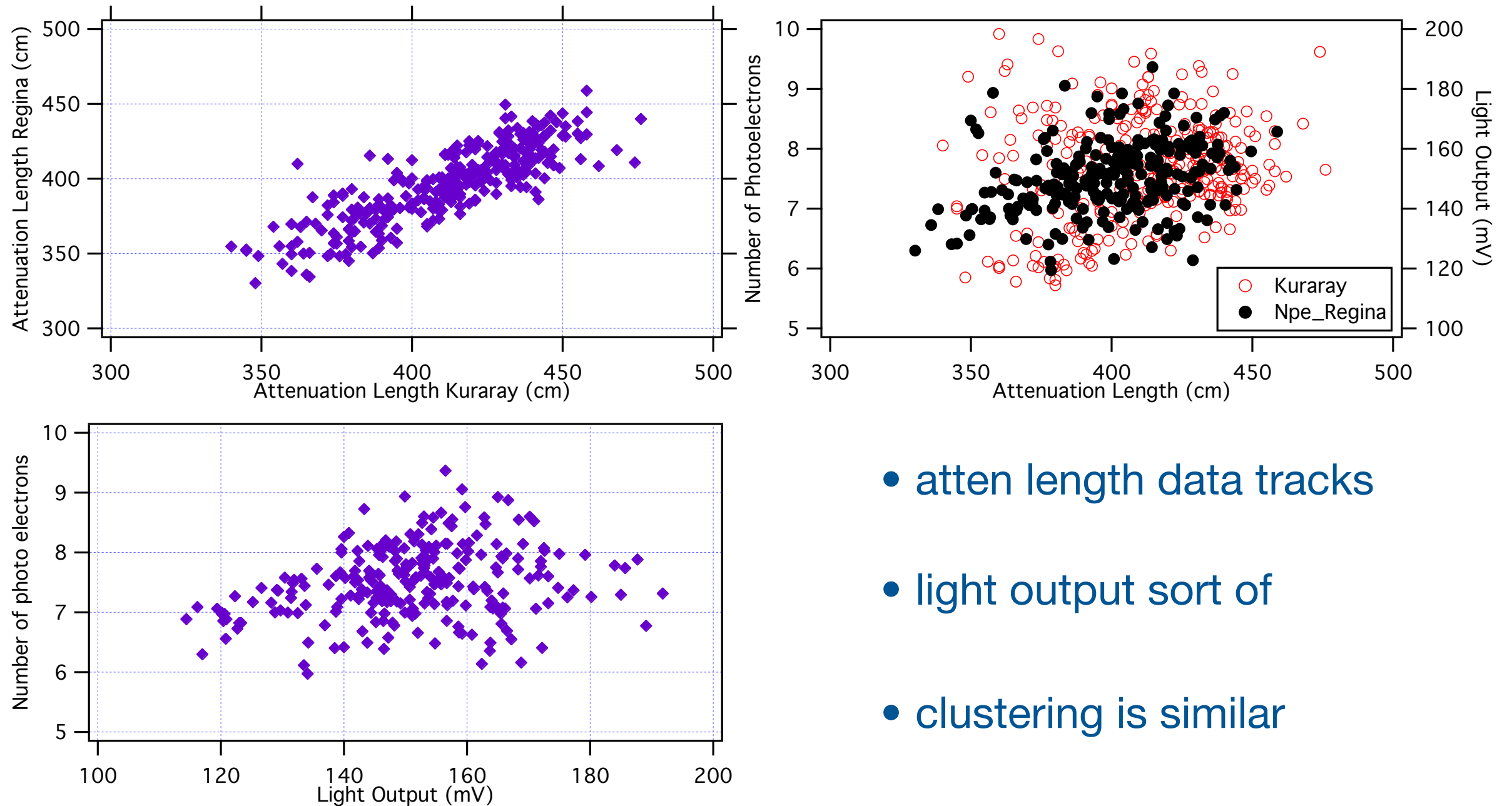
- K: scope
- R: Npe w. 90Sr

Per lot and shipment change;  
Kuraray and Regina roughly track

... and fibres meet specs

# fibre QA comparison

## Shipments 1-15



- atten length data tracks
- light output sort of
- clustering is similar



# Modules 5-12

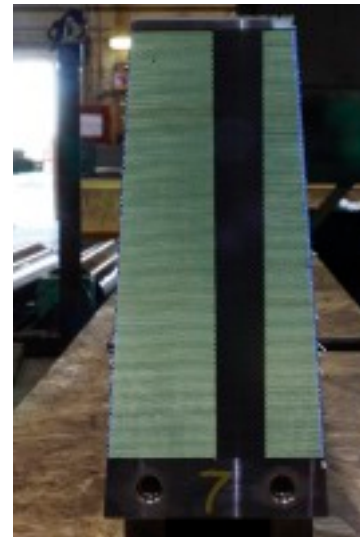
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Mod 05



Mod 06



Mod 07



Mod 08



Mod 09



Mod 10



Mod 11



Mod 12

# simulations & tests

- **Andrei/Irina**

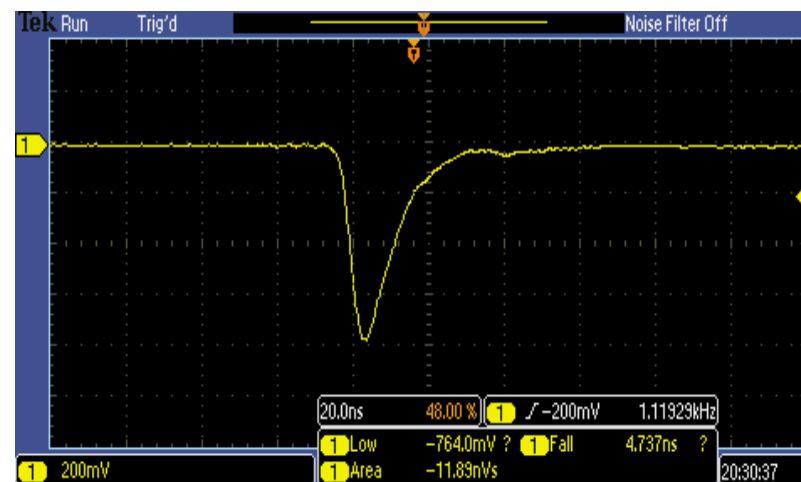
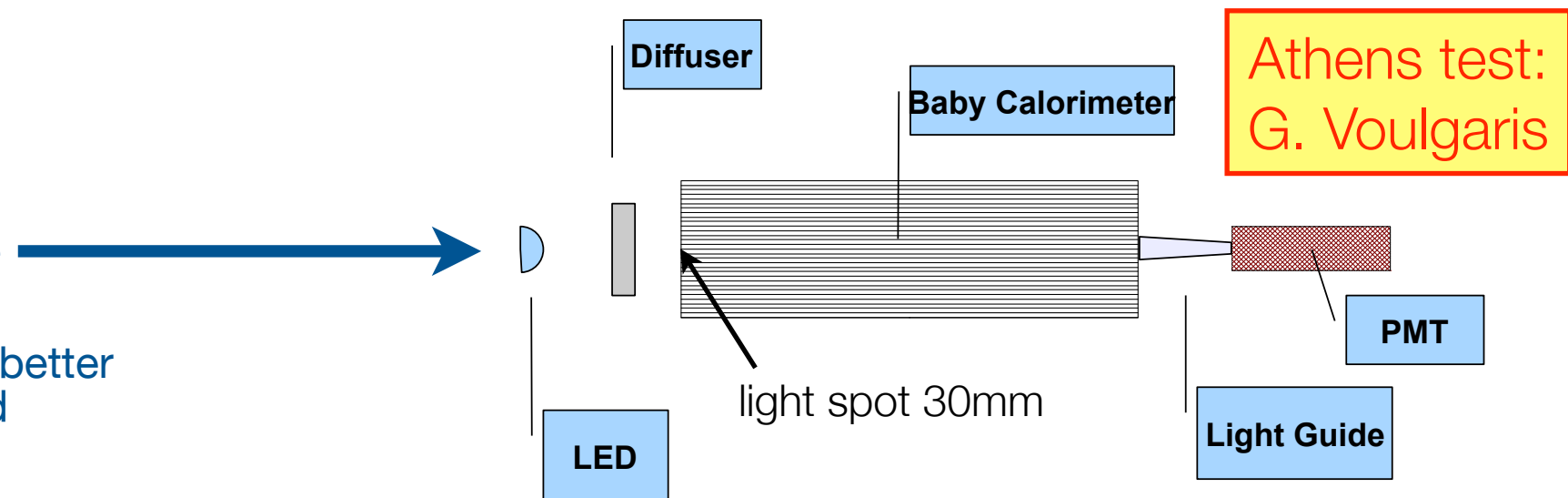
- see Andrei's talk next
- Athens LED on module
- Athens Board resistor: better control of the light yield

- **Stamatis:** BCAL beam test analysis and simulations proceeding well; MSc thesis

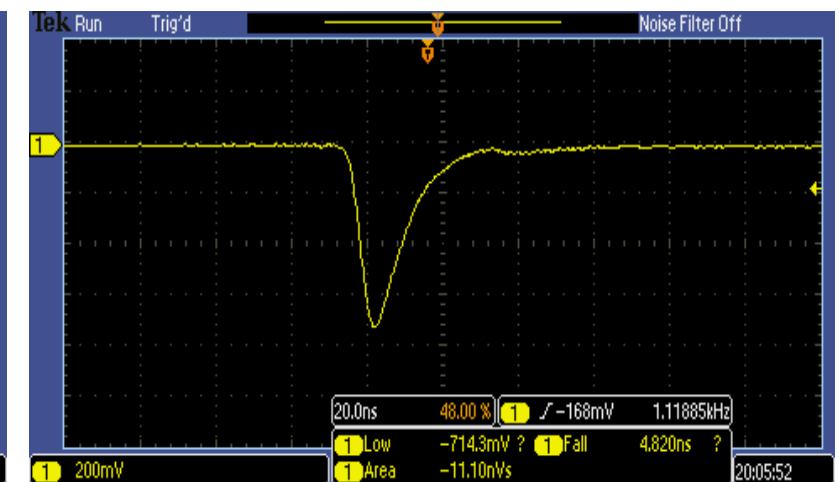
- **Mehrnoosh:** cosmics, fibre QA and SiPMs

- **Kathryn:** @ Canadian Light Source, macromolecular crystallography

- **Blake:** @ KLOE-2 SiPMs & LHCb fibre tracker



Regina Winston Cone



USM Trapezoidal

$$\text{trap/wico} = 0.8-1.0 \text{ (10\% error)}$$

# project summary

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- **matrix layup: pace is nominal, 2 modules/month on build**
  - facilities are operating nominally (1st year crew gained back earlier losses)
  - 4 new students just started, 3 12-month interns, 1 4-month CoOp; 4 experts stayed on (1 full, 3 part)
  - signed-off procedures have been finalized, are posted to DocDB and soon on OCE
  - transmission uniformity: only digital pictures of finished faces
- **fibres:** within specs
- **lead:** all lead is on hand stored at UofR; some requires brushing & then ethanol with wipes
- **consumables:** epoxy on standing order; two more shipments of industrial goop
- **module progress:**
  - Modules 01-12: completed, at JLab Warwick storage
  - Modules 13-16: build & machining completed, will be shipped to JLab on September 13
  - Modules 17-18: build completed, stored at RMS
  - Modules 19-20: building going well (20% complete)
- **Simulations and tests proceeding well**