

# Meeting with Thia on 9/3/19

Thia's summary:

My two specifications from the end of July A1n/d2n collaboration meeting (which aren't exactly the same as the ER):

## **1) 2 existing cells cross characterized at both UVA and JLab (Fulla and Savior):**

- Fulla done at JLab with UVA optics, were able to reproduce UVA results
- Savior partially done at UVA, looks consistent with JLab as much as possible (couldn't do all tests due to some equipment being at JLab)
- Differences accounted for by convection and optics, understood, spin-up time constant and maximum polarization documented
- JLab coils now out of laser lab

## **2) Three new cells filled and characterized (note - didn't require performance):**

- Three cells filled, one characterized, one partially characterized
- Dutch looks good, best performer so far
- Wayne didn't have lifetime performance from initial tests to warrant further characterization
- Zoe didn't have lifetime performance from initial tests to warrant further characterization
- Yeti had three vacuum accidents, others too - not counted in the three

Thia's summary of 9/3/2019 meeting (continued):

Savior and Brianna were good at time of fill/testing, but no longer have the stated performance due to degradation associated with laser intensity, Brianna likely not an option for the experiment but **Savior might be. Should be re-tested and considered a possible back-up.**

### **2 cells ready to go with FOM >80% (Fulla and Dutch)**

Another cell, Tommy, will be filled in the next ~week at William and Mary (to be received tomorrow). We will use the same technique that we have been using recently also for this one and for the next one.

Estimate one cell needed per experiment run month, plus one spare - so six total - for the experiment. **This looks do-able, assuming that production keeps moving at current or improved rate.**

**The group will meet again at the end of September to asses status.** By then, expect to have:

- two to three additional cells plus one sphere filled
- at least one new acceptable cell
- the sphere tested for RF cleaning
- further characterization of the existing cells

(XZ's note: end of Sept meeting doodle poll created but awaiting inputs)

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Savior: 40% Pmax (can be backup but not a good one)

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**The group will meet again at the end of September to asses status.** By then, expect to have:

- two to three additional cells plus one sphere filled ← TOMMY done (WM)
- at least one new acceptable cell
- the sphere tested for RF cleaning ← to check if we can improve the success rate (so far 50% for filled cells and 30% for all cells including vacuum incidents)
- further characterization of the existing cells

(XZ's note: end of Sept meeting doodle poll created but awaiting inputs)

# Current Target Cell Status for A1n/d2n

Cell name	Birthday (fill date)	cold spin down lifetime (hrs)	Max polarization	Expected in-beam polarization	Current status
<b>Dutch</b>	8/22/2019	29.4 (UVa)	54% (UVa)	53%	
<b>Fulla</b>	9/7/2018	17 (UVa); 15 (JLab)	53% (UVa); 54% (JLab)	50%	boxed up at JLab
<b>TOMMY</b>	9/11/2019				potentially a good cell but still double-checking
Brianna	3/27/2019	23 (UVa before damage)	53% (UVa before damage)	48% (before damage)	laser damage, may retest
Savior	10/27/2016	42 (UVa, 2016); 28 (JLab); 14 (UVa 2019)	65% (UVa); 38% (JLab); 40% (UVa 2019)	60% (2016) → ?	laser damage, backup
Flurence	9/28/2018	11 (UVa)	45% (UVa)	44%	

Other cells made before July 24, 2019 meeting: Noah (3/07), Elle (3/29), Sandy-II (5/28), Phoenix (6/3);  
 Other cells made after July 24, 2019 meeting: Zoe, Yeti (broke), Wayne;

# New Cell Plan from now to end of September

– unknown to me! Sorry!