

**From:** [Battou, Abdella \(Fed\)](#)  
**To:** [Polyakov, Sergey V. \(Fed\)](#); [Slattery, Oliver T. \(Fed\)](#); [Polyakov, Sergey V. \(Fed\)](#); [Ma, Lijun \(Fed\)](#); [Miller, Carl A. \(Fed\)](#); [Nam, Sae Woo \(Fed\)](#)  
**Subject:** RE: Post-IMS Meeting  
**Date:** Tuesday, April 23, 2019 3:06:15 PM

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I will send an email tomorrow for time slots for this week and next week.

Cheers,  
Abdella

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**From:** Polyakov, Sergey V. (Fed) <spoly@nist.gov>  
**Sent:** Tuesday, April 23, 2019 2:43 PM  
**To:** Slattery, Oliver T. (Fed) <oliver.slattery@nist.gov>; Battou, Abdella (Fed) <abdella.battou@nist.gov>; Polyakov, Sergey V. (Fed) <sergey.polyakov@nist.gov>; Ma, Lijun (Fed) <lijun.ma@nist.gov>; Miller, Carl A. (Fed) <carl.miller@nist.gov>; Nam, Sae Woo (Fed) <saewoo.nam@nist.gov>  
**Subject:** Post-IMS Meeting

Abdella and others,

I am available throughout this week, pretty much any time.

The items to discuss may be:

- 1) transitioning our state discrimination experiment to 1550nm. This must happen so that we do not lose our competitive edge.
- 2) theory support. This may become essential part for the future proposal, because by next year I expect having some results on our CFSK at least in the visible. When these results are in, we need a solid technical plan how to improve from that point on.

We have a few postdocs/guest researchers who are working on this project full-time or part-time, sufficient to make some progress. Beyond this, if anyone wants to help with either experiment or theory, we should talk about how to speed up the research with the help available.

Sergey.

On 4/5/2019 4:30 PM, Polyakov, Sergey V. (Fed) wrote:

Sae Woo ref:

<https://www.nature.com/articles/nphoton.2013.13>

State-of-the-art telecom ref:

Journal of Lightwave Technology > Volume: 35 Issue: 11 Pg. 2132  
Power Consumption Analysis of Hybrid EDFA/Raman Amplifiers in Long-Haul  
Transmission Systems, Lars Lundberg, Peter A. Andrekson, and Magnus Karlsson

On green optical communication:

This paper is the first that identifies a problem (but solves it with devices put in "sleep" mode). Over 1000 citations.

M. Gupta and S. Singh, "Greening of the internet," SIGCOMM '03 Proceedings of the 2003 conference on Applications, technologies, architectures, and protocols for computer communications Pages 19-26, Karlsruhe, Germany, 2003

I used this one to understand idealized scenarios, but I don't know if we want to point to this paper, because it says point blank that the main issue will be switching not transport. But, if we have to, here it is...

Rodney S. Tucker, Green Optical Communications, Parts 1, 2 IEEE Journals of selected topics in quantum electronics. Vol 17, No2 March april 2011, p 245 -- 274.

On 4/5/2019 1:57 PM, Slattery, Oliver T. (Fed) wrote:

B263 in 222 for todays get together.

Thanks  
Ollie S.

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**From:** Slattery, Oliver T. (Fed)

**Sent:** Friday, April 05, 2019 10:50 AM

**To:** Battou, Abdella (Fed) <[abdella.battou@nist.gov](mailto:abdella.battou@nist.gov)>; Polyakov, Sergey V. (Fed) <[sergey.polyakov@nist.gov](mailto:sergey.polyakov@nist.gov)>; Ma, Lijun (Fed) <[lijun.ma@nist.gov](mailto:lijun.ma@nist.gov)>; Miller, Carl A. (Fed) <[carl.miller@nist.gov](mailto:carl.miller@nist.gov)>; Nam, Sae Woo (Fed) <[saewoo.nam@nist.gov](mailto:saewoo.nam@nist.gov)>

**Subject:** QuantumReceiver\_April5.docx

So cleaning it up this time was basically accepting our changes from yesterday's meeting. I left in Mark's comments for now so that we can remind ourselves of the reason for the word changes yesterday. One thing I did change was reverting to 'bottleneck' from 'brickwall'. The brickwall came across as too strong when I re-read it (especially thinking of Saewoo's earlier comment about this issue).

Thanks  
Ollie S.

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**From:** Slattery, Oliver T. (Fed)  
**Sent:** Wednesday, April 03, 2019 11:11 PM  
**To:** Battou, Abdella (Fed) <[abdella.battou@nist.gov](mailto:abdella.battou@nist.gov)>; Polyakov, Sergey V. (Fed) <[sergey.polyakov@nist.gov](mailto:sergey.polyakov@nist.gov)>; Ma, Lijun (Fed) <[lijun.ma@nist.gov](mailto:lijun.ma@nist.gov)>; Miller, Carl A. (Fed) <[carl.miller@nist.gov](mailto:carl.miller@nist.gov)>; Nam, Sae Woo (Fed) <[saewoo.nam@nist.gov](mailto:saewoo.nam@nist.gov)>  
**Subject:** Re: QuantumReceiver\_April3.docx

Scrubbed this up a bit and added some new references. After our editing and moving text today, there was a bit of repetition within several paragraphs so I tried to resolve these. Beyond that and a few minor things, I did not change any of the content or structure in this version. I would not mind getting feedback from Mark or Ron on this but letting them know that the wording is still a work in progress.

Also think we should at least try for a figure as Elham requested. I can have a go at that some time tomorrow.

thanks  
Ollie S.

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**From:** Battou, Abdella (Fed)  
**Sent:** Wednesday, April 3, 2019 4:52 PM  
**To:** Slattery, Oliver T. (Fed); Polyakov, Sergey V. (Fed); Ma, Lijun (Fed); Miller, Carl A. (Fed); Nam, Sae Woo (Fed); Battou, Abdella (Fed)  
**Subject:** QuantumReceiver\_April3.docx

Latest draft

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San Jose, CA, USA May 5 - 10.  
[www.cleoconference.org](http://www.cleoconference.org)

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