

From: [Peralta, Rene C. \(Fed\)](#)
To: [Boisvert, Ronald F. \(Fed\)](#)
Cc: [Brandao, Luis \(IntlAssoc\)](#)
Subject: Re: Quantum computing NISTIR
Date: Thursday, September 16, 2021 12:37:08 PM

Ron, many thanks for these pointers. We will try to carve some time to deal with this soon.

Regards, René.

From: Boisvert, Ronald F. (Fed) <boisvert@nist.gov>
Sent: Wednesday, September 15, 2021 3:18 PM
To: Peralta, Rene C. (Fed) <rene.peralta@nist.gov>
Cc: Brandao, Luis (IntlAssoc) <luis.brandao@nist.gov>
Subject: RE: Quantum computing NISTIR

Hi Rene.

I shared the link to this paper with some folks in my Division, some of whom were at the first meeting you had with Google on this topic. They hadn't seen it (which is one byproduct of publishing it on ResearchGate). Virtually every paper on the topic of quantum information is first released in the quant-ph area on arXiv. It's really there where the best visibility will be obtained. I particularly pointed out the questions that you posed at the end of the document. I already sent you a paper that Matt Coudron suggested. Scott Glancy had the following additional ones:

I believe that some of the open questions listed in their Conclusions section may have already been studied. In addition to the paper Matt recommended, I would mention these papers by Bill Fefferman and his collaborators:

Noise and the frontier of quantum supremacy

<https://arxiv.org/abs/2102.01738>

Efficient classical simulation of noisy random quantum circuits in one dimension

<https://arxiv.org/abs/2003.13163>

Quantum Supremacy and the Complexity of Random Circuit Sampling

<https://arxiv.org/abs/1803.04402>

I hope this is of interest.

Ron

From: Peralta, Rene C. (Fed) <rene.peralta@nist.gov>

Sent: Tuesday, September 14, 2021 11:48 AM

To: Chen, Lily (Fed) <lily.chen@nist.gov>; Regenscheid, Andrew R. (Fed) <andrew.regenscheid@nist.gov>

Cc: Boisvert, Ronald F. (Fed) <boisvert@nist.gov>; Brandao, Luis (IntlAssoc) <luis.brandao@nist.gov>

Subject: Quantum computing NISTIR

Hi Lily, Andy,

This paper <https://www.nist.gov/publications/notes-interrogating-random-quantum-circuits>

has already been through WERB. We have put it on reasearchgate, and our intention was to submit it to a journal or conference. But we have too much on our plate, so we would like to make it a NISTIR instead. Is that OK with you?

Regards, René.