



# PHYSICS COLLOQUIUM: It's Only A Paper Moon

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**Date:**

3/12/2021

**Time:**

10:30 AM-11:50 AM

**Link:**

Please contact  
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for the Zoom link and  
passcode.

**About The Speaker:**

Tim Peshek is currently a Research Electrical Engineer in the Photovoltaics and Electrochemical Systems Branch at NASA Glenn Research Center, having served in this position since early 2017. Prior to joining NASA, Tim was Associate Research Professor of Materials Science and Engineering at Case Western Reserve University from 2013-2017 where he arrived after a period as tech lead for a renewable energy startup company designing microinverters for solar panels. While at CWRU Tim helped develop an undergraduate program for data science and analytics for materials development. From 2008-2010 he worked as a postdoctoral scholar at Arizona State University and as visiting researcher at the National Renewable Energy Laboratory. Tim received a PhD in semiconductor physics for work on wide band gap optoelectronics in 2008 from Case Western Reserve University's Department of Physics.

**Abstract:**

One cool October morning in Cleveland I was presented with an interesting opportunity: a call for proposals for commercial lunar payloads was out, the response time frame was rapid, and the solicitation desired hardware that was nearly complete. I took the afternoon off, went for a long hike in a local park and developed an idea, later to be known as the Photovoltaic Investigation on the Lunar Surface (PILS). I will recount the story of how a handful of photovoltaics researchers developed lunar hardware to probe the interaction of solar arrays and the lunar plasma environment, and what this project means for NASA, going forward. My goal is to convey the message that the paperwork was as challenging as the research and development, but made me a better scientist. In this telling I will also present the fundamental physics of plasma interaction science, future directions in our research and also motivate why thin film solar cells may end up being the future of space power – if we can make them somewhere else.

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