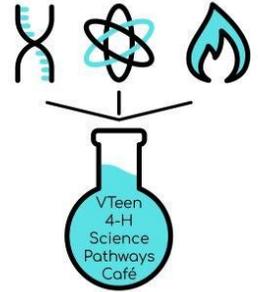




VTeen Science Explorations



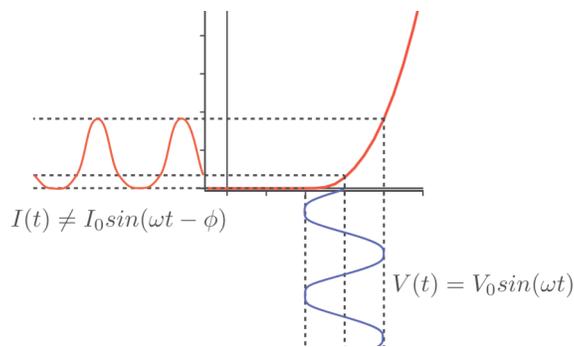
How We Look Inside a Solar Cell: A Nonlinear Approach to Impedance Spectroscopy

Wednesday, February 17, 2021, 3:30-4:45 pm

Open to all youth entering grades 7-12 in VT and across the country!

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At its heart, a solar cell is a device where photons come in and current, or electricity, comes out. A useful measure of how a solar cell works is the ratio of in to out, which we call the impedance. To make the math easier, conventional techniques that measure impedance assume that as we change the in to be larger or smaller, the out changes at the same rate. This would make their ratio, the impedance, equal to 1. This is a linear system. However, solar cell materials do not behave linearly and by assuming they do we lose access to so much of the useful information there to learn from. A new technique

called Nonlinear Impedance Spectroscopy (NLIS) uses these nonlinearities to its advantage to unlock a fuller, far more beautiful picture of what goes on inside a solar cell. Come to this café to learn about this technique!

ABOUT OUR SPEAKER

Robin Rice is a graduate student at UVM currently completing his Master's in Materials Science. He entered the field of Materials Science after receiving his Bachelors from UVM in Environmental Science in 2018. Robin's research started in organic chemistry with a focus on developing novel syntheses for organic semiconductors and has moved into design, fabrication, and electrical analysis of organic solar cells within Dr. Matthew White's Device Fabrication Lab at UVM, in addition to continued organic synthesis in coordination with the UVM Chemistry department.

What is a Virtual Teen Science Café? It is a free, fun way for teens to explore science, engineering and technology with local scientists, engineers and technology experts. Teens will “meet a scientist”, learn about their work, and be able to participate in informal discussions.

Questions? Contact lauren.traister@uvm.edu

To request a disability-related accommodation to participate in this program, please contact the 4-H Office at 802-888-4972 or lauren.traister@uvm.edu by February 3, 2021 so we may assist you.



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