

# Young Professionals

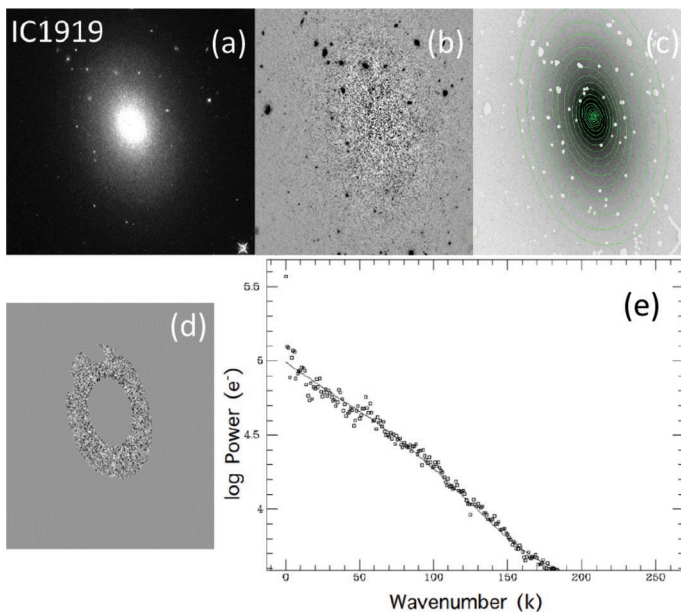
## The Beaten Path Less Traveled By

Like many of us, I have attended numerous panels, seminars, and workshops geared toward helping young professionals and students. The more senior professionals are gathered for us to question and tap them for wisdom and anecdotes. One such question that inevitably comes up in one form or another is, “How did you get to where you are?” A thinly veiled question intending to ask how can one get to the same or similar position. The response often begins with a soft chuckle and a “well...” Their answers are caveated by “my path was not the typical path.”

However, I have heard about this “atypical” path so often that perhaps this “atypical” path is in fact a typical path. That is, most folks seem to meander a bit, changing directions, going on whims with various folks in their network, and perhaps “getting lucky” or being in the “right place at the right time.” A similar journey has certainly been my own experience.

## My Path

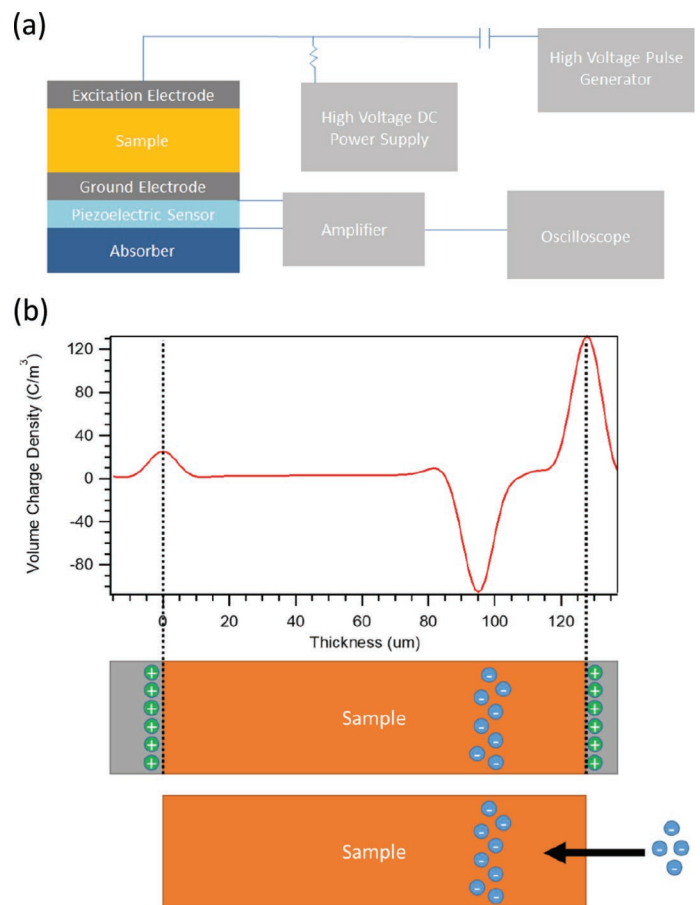
When I decided I wanted to attend college, I had no clue what I wanted to study. I was most interested in psychology at



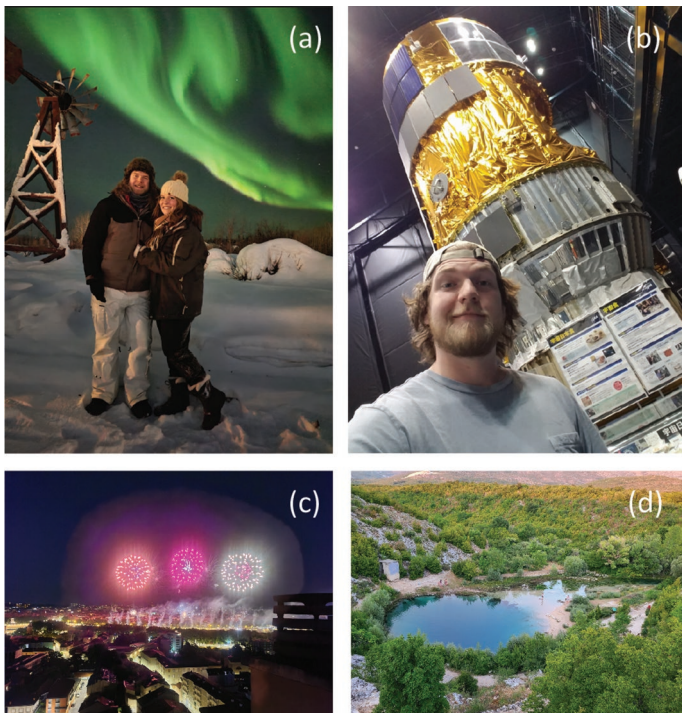
**Figure 1.** Surface brightness fluctuation analysis example. (a) Image of galaxy IC1919, (b) residual image, (c) masked and elliptical isophotes, (d) annular mask, and (e) SBF fit to power spectrum of masked annulus [1]. (Based on observations made with the NASA/ESA Hubble Space Telescope, obtained from the data archive at the Space Telescope Science Institute (STScI). STScI is operated by the Association of Universities for Research in Astronomy Inc. under NASA contract NAS 5-26555.)

the time, but I was under the impression that a graduate degree was necessary for the degree to hold utility. I did not envision a future with graduate school in it. I instead chose to study physics on a whim, as I was good at math and considered science generally interesting. This led me to conduct various research projects during my undergraduate time, primarily focusing on surface brightness fluctuation analysis to determine distances to galaxies, with an example of such a measurement shown in Figure 1 for galaxy IC1919. I enjoyed the research and the relaxed environment of education that I experienced. Because of this, I seemingly played a joke on my past self and decided to apply for graduate school.

When considering graduate schools and programs, I bounced between many programs from astronomy to plasma physics, waiting until the very last moment before accepting a fellowship at Utah State University to investigate the pulsed electroacoustic (PEA) method and apply it to spacecraft charging issues. A representative schematic of the PEA system is given in



**Figure 2.** Pulsed electroacoustic method: (a) representative schematic and (b) representative result of electron irradiated polymer [3].



**Figure 3.** Photos from my travels: (a) my partner and me under the northern lights in Fairbanks, Alaska; (b) me at JAXA in Tsukuba, Japan; (c) Bastille Day fireworks in Toulouse, France; and (d) the source of the Cetina River, “eye of the Earth,” in Croatia.

Figure 2, along with an example result from a polymer irradiated with an electron beam. At the time, I had no idea what I was getting into. I only knew that I wanted to do more “hands on” physics and the research would be tangentially related to my prior muse of astronomy.

During graduate school, I had experiences I never imagined were possible. I traveled the world presenting at conferences and expanding my network, contributing to a field of knowledge. I was fortunate enough to have the experience of spending a month studying in Japan and several months conducting research in France. I delved deep into the science of charge dynamics in highly disordered insulating materials, a topic which I had not previously considered of interest but now consider incredibly fascinating. I even managed to propose and validate something completely new, a simple method of measuring shallow charge distributions via the PEA method [2], earning a PhD in physics at last.

## Looking Back

Reflecting on my experiences throughout my education, I have come to realize many things. An overarching theme occurs to me that you can never quite be prepared for what is to come, but I believe this to be essential to the learning experience. Although, I do have a few words of advice for others to aid in their journeys.

First and foremost, be sure to enjoy what you are doing. Take time to achieve personal goals as well, as graduate school can feel all encompassing. One of the best simple pieces of advice I have received and follow myself is to keep weekends sacred, no work. Of course, the odd working weekend may slip in every so often. Make a conscious effort to do things outside of school. For me, this was traveling. I managed to take advantage of conference travel, fellowships, and any free time I had to travel the world. I have shared some of my travels in Figure 3.

Professionally, the best advice I can give is to talk to people. Know people in your field. Reach out, ask questions, and start collaborations. Solicit your research to folks to give presentations at laboratories and universities that may be interested. Ride the fine line between taking advantage of any opportunities that come up and knowing when to say no. Take advantage of opportunities that may seem unrelated as well, such as serving on committees, teaching, joining clubs, and so on. It does not hurt to have more breadth and to know more people. Do not be afraid to take advantage of opportunities now, reach out to other folks, and make connections.

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## References

- [1] Z. J. Gibson, J. B. Jensen, H.-c. Lee, and J. Blakeslee, “Probing Stellar Populations in the Virgo and Fornax Clusters with Infrared Surface Brightness Fluctuations,” Poster. Salt Lake City, UT: NASA Space Grant Consortium, 2015.
- [2] Z. Gibson and J. Dennison, “A simple method for determining shallow charge distributions in dielectrics via pulsed electroacoustic measurements,” in *IOP Conf. Series: Materials Science and Engineering*, 2023, p. 012017.
- [3] Z. Gibson, “Precise determination of charge distributions in electron irradiated polymers via pulsed electroacoustic measurements with applications to spacecraft charging,” PhD Dissertation, Utah State Univ., Logan, UT, 2023.

The Young Professionals column features young researchers, engineers, and entrepreneurs in our community to share their experiences and discuss matters related to their professional development. If you would like to contribute or have any suggestions, please contact the DEIS-YP Secretary Allen Andresen at [allen.j.andersen@jpl.nasa.gov](mailto:allen.j.andersen@jpl.nasa.gov). Follow us on LinkedIn at <https://www.linkedin.com/company/ieee-deis-young-professionals/> for the latest updates and events that are of interest to DEIS-YPs.