

Broadening Your Horizons

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A problem that I had when I graduated with my physics degree was figuring out what I wanted to do with my life after college. This seems to be a common problem among alumni who have completed their undergraduate degree in physics and do not wish to pursue a career in academia. The first issue that arose for me was my lack of practical knowledge on a specific topic that is demanded by industry. In this talk, I will discuss how I worked through this problem by taking advantage of every opportunity that I was presented so that I could expand my knowledge in a direction that would be applicable to a specific industry. I will also talk about the continual growth that is required in your specific field to become a useful asset to large companies even after you have been given that first job, whether it is big or small. Finally, I will argue that becoming a successful salaried employee does not mean that you have to give up on your passion, which for me is physics.

Low-energy bound states, resonances, and scattering of light ions

Benjamin Luna, TTU Physics

We describe bound states, resonances and elastic scattering of light ions using a δ -shell potential. Focusing on low-energy data such as energies of bound states and resonances, charge radii, asymptotic normalization coefficients, effective-range parameters, and phase shifts, we adjust the two parameters of the potential to some of these observables and make predictions for the nuclear systems $d + \alpha$, ${}^3\text{He} + \alpha$, ${}^3\text{H} + \alpha$, $\alpha + \alpha$, and $p + {}^{16}\text{O}$. We identify relevant momentum scales for Coulomb halo nuclei and propose how to apply systematic corrections to the potentials. This allows us to quantify statistical and systematic uncertainties. We present a constructive criticism of Coulomb halo effective field theory and compute the unknown charge radius of ${}^{17}\text{F}$.