

CSU PHYSICS COLLOQUIUM

“The Detection of Cosmic Fossils”

Jeff Dror

UC Santa Cruz

Monday January 10th at 4:00pm

120 Engineering (Hammond Auditorium)

Abstract

The first minute of our universe is a mysterious epoch. During this period, the universe may have experienced rapid expansion, filled with a plasma reaching temperatures well exceeding that inside of stars, and undergone cosmic phase transitions. However, we have yet to figure out which combination of these events gave rise to our existence. To study the first minute requires directly detecting particles ejected during this time with our experiments here on Earth. In this talk, I will discuss the program to find these cosmic fossils over a huge range of possible energies using a combination of tanks of atoms in neutrino experiments and table-top experiments searching for anomalies in electric and magnetic fields. By surveying the skies, I will show how we can uncover the origins of our universe.

Biography

Born in Israel and raised in Toronto, Canada, Dr. Jeff Dror held a postdoc position at UC Berkeley after completing his PhD at Cornell University in 2017. After his post doc at UC Berkeley he found himself at Santa Cruz Institute for Particle Physics (SCIPP) at UC Santa Cruz.

Dror first discovered a passion for physics during his undergrad in Toronto. As he began his graduate studies, he chose particle physics and enjoyed studying physics in its fundamental form. He is interested in understanding how the interface of particle physics, cosmology, and astrophysics can unlock some of the deepest mysteries of our universe.

Outside of physics, he has a love for music and can be regularly found playing guitar, piano, and practicing his vocal cords. Dror is also passionate about just about anything outdoors including hiking, backpacking, and skiing. As a Canadian, he naturally fell in love with hockey and his favorite childhood hockey team was the Colorado Avalanche.