

COLORADO

CAFÉ SCIENTIFIQUE

TUESDAY 21 SEPTEMBER 2010

at the Wynkoop Brewing Company

<http://www.wynkoop.com/>

Corner of 18th and Wynkoop in LoDo, Denver

About a block from Light Rail. Thirteen minutes by foot from Auraria.

WHY AND HOW ARE WE SHOOTING NEUTRINOS ACROSS JAPAN?

Eric D. Zimmerman, PhD, Department of Physics,
University of Colorado at Boulder

Tiny particles called neutrinos are one of the fundamental building blocks of our universe. Enormous numbers of neutrinos are produced inside stars and supernova explosions, and they are so numerous that trillions of them have harmlessly passed through you in the time it has taken you to read this sentence. With no electric charge and practically no mass, neutrinos can travel through light-years of rock or lead without being disturbed. Recent observations that neutrinos can change from one type to another type have shown that, surprisingly, the neutrino's mass is not zero. This fact opens up the possibility that neutrinos played a critical role in the development of matter and antimatter in the universe after the Big Bang. Many experiments are now seeking to uncover the properties of neutrinos, including the Tokai to Kamioka ("T2K") project in Japan. We are using a powerful particle accelerator to create a beam of neutrinos, and send them through the earth to the Super-Kamiokande neutrino detector on the other side of the country. I'll explain why we're doing this, how we make neutrinos, and how we detect them.

EVERYONE IS WELCOME. The discussion starts at 6:30 in the Mercantile Room (no food service there). Come before 6 PM to leave yourself time to get something to eat, or stay and eat afterwards. We end around 8 PM.

There's no charge. The Wynkoop is generously providing the facility; we buy our own drinks. It is first come, first seated, and **seating is limited** so that everyone can take part in the discussion.

The Colorado Café Scientifique is organized by an informal group of faculty from CU and institutions up and down the Front Range, as well as science fans from industry, government and elsewhere. We welcome your input, including ideas for speakers and topics. Bring them with you to the next Café, or e-mail them and any questions to John.Cohen@UCDenver.edu

Essential information on our Web site at: <http://CafeSciColorado.org>