



THE UNIVERSITY OF ARIZONA

College of Agriculture, Life & Environmental Sciences

SPECIAL SEMINAR: March 5, 2026, 9:00-10:00 AM

Room S215, ENR2 Building

The Future of Agriculture at ARPA-E

Abstract:

ARPA-E (Advanced Research Projects Agency – Energy, U.S. Department of Energy) has a legacy of funding visionary projects in agriculture that fulfill the mission of the Department of Energy. Building on this legacy, we have developed a program that will develop a new nitrogen cycle for the cultivation of bioenergy crops like corn and sorghum. In this new cycle, synthetic nitrogen fertilizer will be reduced by redesigning biological nitrogen fixation, plant nitrogen use efficiency and soil nitrogen cycling to deliver nitrogen to the plant more efficiently. We are also considering new ways to use agriculture beyond biofuels, by developing plants that hyperaccumulate critical minerals and serve as “living refineries” to produce bio-based chemicals using native plant metabolic pathways.

Presenter:

Dr. Steven Singer currently serves as a Program Director for the Advanced Research Projects Agency-Energy (ARPA-E) and is a Senior Scientist in the Biological Systems and Engineering Division at Lawrence Berkeley National Laboratory. At ARPA-E, he is focused on nitrogen and carbon management in agriculture and biomanufacturing.

Before joining ARPA-E, Dr. Singer was the Director of the Microbial and Enzyme Discovery Group at the Joint BioEnergy Institute in Emeryville, CA. His group studied the microbial bioconversion of plant biomass and greenhouse gases (carbon dioxide, methane) to fuels and chemicals. His group has also developed several widely used software tools for metagenomic analysis to characterize microbiomes.

