



Department of
Engineering Physics
UNIVERSITY OF WISCONSIN-MADISON

INSTITUTE FOR
NUCLEAR
ENERGY SYSTEMS

Presents:
Kirk Sorensen
Flibe Energy



Abundant Energy and Medicine from Thorium

Abstract: The challenge of meeting world energy needs with a clean, reliable, and scalable source of energy seems nearly impossible with present technologies. But naturally-occurring thorium has been known to be an energy option of sufficient magnitude for this challenge since 1944, and its potential inspired research pioneers like Glenn Seaborg, Eugene Wigner, and Alvin Weinberg. Their work in the 1950s and 1960s showed that a revolutionary type of reactor using liquid-fluoride salts could safely and efficiently unlock the energy-generating potential of thorium. An integrated chemical processing system allowed the entire thorium fuel cycle to be realized in the reactor. While the design had tremendous technical appeal it was and continues to be underappreciated by conventional nuclear designers. The publication of source material from Weinberg's effort in 2006 has fueled global interest in this technology, but Flibe Energy remains uniquely committed to Weinberg's original vision. The Flibe Energy concept of a Liquid-Fluoride Thorium Reactor will be described and discussed as the culminating stage of nuclear development.

Biography: Kirk Sorensen is an engineer working on the development of liquid-fluoride thorium reactors (LFTR) as a source of energy and important materials. He has master's degrees in nuclear engineering from the University of Tennessee and in aerospace engineering from the Georgia Institute of Technology, and a bachelor's degree in mechanical engineering from Utah State University. Mr. Sorensen founded Flibe Energy in 2011 and has led their efforts to develop the LFTR, including the completion of an industry-funded conceptual study for the Electric Power Research Institute. Mr. Sorensen has been a public proponent of thorium technology since 2006, speaking across Europe and North America as well as in Asia and Australia. Previous to founding Flibe Energy, he was chief nuclear technologist at Teledyne Brown Engineering in Huntsville, Alabama, and from 2000 to 2010 he worked for NASA's Marshall Space Flight Center including a two-year assignment to the US Army's Space and Missile Defense Command. He lives in northern Alabama with his wife and four children.

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