



Institute for Materials Science

UNCLASSIFIED

IMS Materials Summer School 2017



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Los Alamos National Laboratory

History and Applications of ^{238}Pu

Thursday, June 22, 2017

1:00 - 2:00 - Physics Auditorium

Physics Auditorium (TA3-215-182)

Abstract: The first isotope of plutonium to be discovered was ^{238}Pu , produced in 1940 by bombarding uranium with deuterons. Its short half-life (87.7 yr) makes this isotope ideal for use in radioisotope power systems – nuclear power systems that derive their energy from the heat produced by spontaneous radioactive decay, as distinguished from nuclear fission. Most radioisotope power systems use ^{238}Pu as an isotope heat source, and ^{238}Pu become an important source of power for fuelling interplanetary probes, unmanned spacecraft, and vehicles on Mars. I will provide an overview of the production, component fabrication and peaceful applications of this very important isotope.

Bio: David L. Clark is a Los Alamos National Laboratory Fellow and Director of the Laboratory's National Security Education Center. He joined Los Alamos as a postdoctoral fellow in 1988. Since then he has held various leadership positions at the Laboratory, and become an international authority on the chemistry and physics of the actinides. He has published 170 peer-reviewed publications, encyclopedia and book chapters, and is currently co-editing the 2nd edition of the Plutonium Handbook. His research interests are in the molecular and electronic structure of actinide materials, applications of synchrotron radiation to nuclear security, behavior of actinide and fission products in the environment, the aging effects of nuclear weapons materials, and the education and training in actinide science.

The IMS Materials Summer School focuses on Materials Science at Los Alamos National Laboratory and is designed to expose our visitors to the broad range of great materials science performed at the Lab. Through the course of **seven talks** and **three site visits**, students will have a unique opportunity to learn about LANL directly from our **top scientists** and participate in **facility tours**.

For general information contact:

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