



An  
**Advanced Materials**  
Commercial Opportunity

LA-UR-19-22436  
4/3/2019



## REQUEST FOR **INFORMATION**

### High Performance Rare Earth Starting Materials

PYRLnESS (read as “peerless”) Rare Earth Starting Materials are a set of 32 new high-performance materials being offered to researchers who require improved materials to solve considerable challenges within the next generation of technologies. These unique compounds enable researchers to accelerate development with new material building blocks. Los Alamos National Laboratory is providing the basis of new classes of materials for applications and products in areas such as phosphors, catalysts, magnets and quantum computing.



## AREAS FOR **PARTNERSHIP**

The Los Alamos team has identified areas for partnership and/or exclusive or nonexclusive, commercial licensing to advance this technology. Collaboration with research or commercial entities could promote utilization of these materials by:

- Expanding the library of compounds that have been synthesized from these materials.
- Providing unique use cases for which these materials may provide a new solution.
- Examining process compatibility at scale for these materials.


Please submit a written response to the contact below if your organization would like to pursue the technology in partnership with Los Alamos by **July 1, 2019**.

### CONTACT:

 Ross Muenchausen

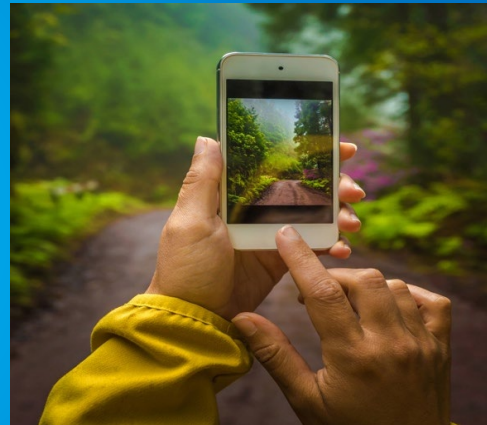
 505.664.0558

 [rossm@lanl.gov](mailto:rossm@lanl.gov)

 Mail Stop C333  
P.O. Box 1665  
Los Alamos, NM  
87545

 [www.lanl.gov/feynmancenter](http://www.lanl.gov/feynmancenter)

**FCI**   
Richard P. Feynman  
Center for Innovation  
at Los Alamos National Laboratory



## WHY **RARE EARTH STARTING MATERIALS**

While the current rare earth research market is relatively small, these materials have the potential to grow the market dramatically by creating more reliable options for scientists. Additionally, outsourcing to the academic sector enables access to industrial markets, such as phosphors and catalysts, to develop new technologies with superior materials.



## WHAT'S BEHIND OUR **TECHNOLOGY**

By taking advantage of new redox chemistry, we are able to create these improved products under mild conditions. The chemistry allows for extremely simple processing of the product and recycling of solvents and byproducts. The Los Alamos team is creating a more economical process to provide better materials.



## WHAT'S UNIQUE ABOUT OUR **SOLUTION**

The rigorously water- and air-free, organic soluble materials are a first for the rare earth research market, and will dramatically improve the ease-of-use for this class of materials. With these improvements, we expect our materials to dramatically lower the entry barrier for this field and grow the market for our products.



## OUR **COMPETITIVE ADVANTAGES**

- ▶ Completely water- and air-free
- ▶ Organic soluble
- ▶ Improved shelf stability
- ▶ Improved synthetic utility



## OUR **TECHNOLOGY STATUS**

The first 5 rare earth materials will soon be available through STREM Chemical Inc., one of the main inorganic chemical suppliers in North America and the United Kingdom. We will continue to scale up and expand the catalog over the course of 2019.



## **PUBLICATIONS AND INTELLECTUAL PROPERTY**

One provisional patent has been filed and one additional disclosure has been made.