SEMINAR

UNIVERSITÀ DI TRENTO
Dipartimento di Ingegneria Industriale

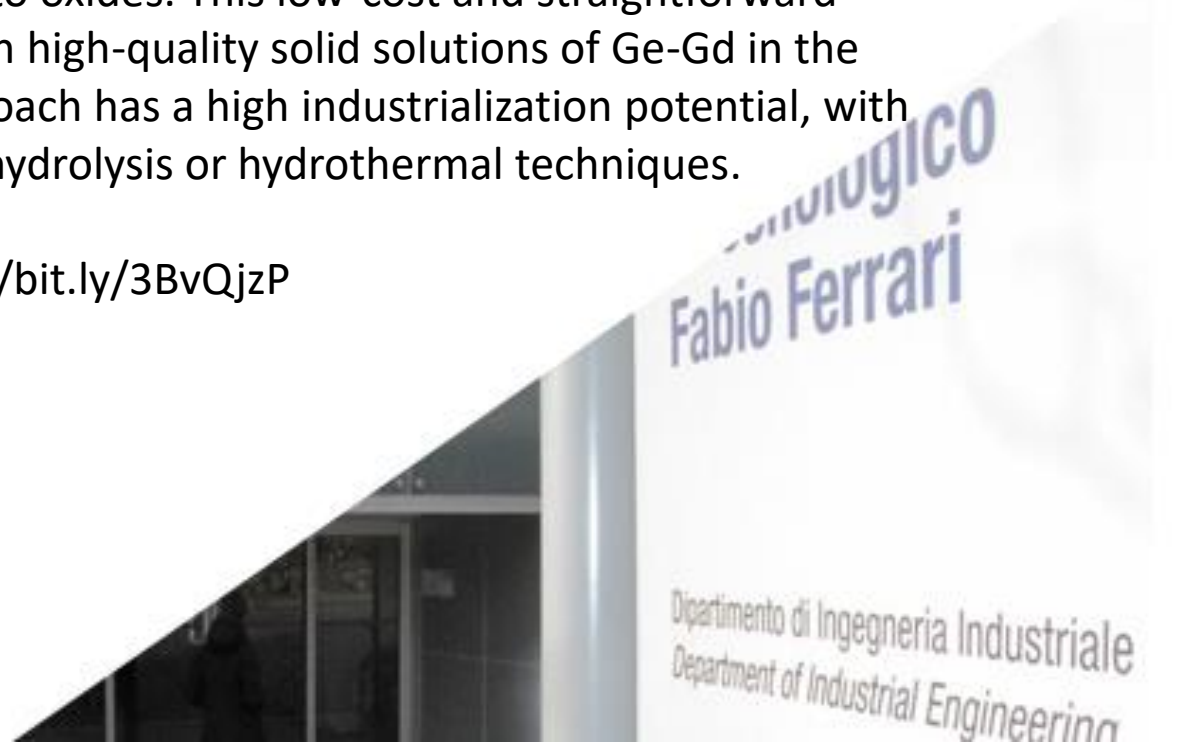
Chemistry of lanthanide/actinide oxalates

Václav Tyrpekl - Charles University, Czech Republic

Seminar Room- Polo Fabio Ferrari 9, via Sommarive 9, Trento
21 October 2021, h. 14:30

Oxalate salts are important materials in the chemical technology of lanthanides and actinides. Thanks to their low solubility they are applied in oxide synthesis and separations. One of the interesting examples is cerium dioxide. Ceria, pure or doped, is an important electrolyte material in solid oxide fuel cells, catalysts, and plutonium surrogates. Even though ceria is a widely studied material, its coprecipitation with the most common doping element, gadolinium, is taken mostly as mastered, which might not be the case. The lecture deals with a comprehensive study of gadolinium-cerium oxalates prepared by coprecipitation of gadolinium (III) and cerium (III) salts by oxalic acid under different reaction conditions and element ratios. For this purpose, we assessed the effects of basic precipitation conditions on the final oxalate size, shape, and conversion into the corresponding oxides. The results showed that coprecipitation with oxalic acid yields an ideal solid solution, which translates into oxides. This low-cost and straightforward synthetic route provides then high-quality solid solutions of Ge-Gd in the oxide lattice. Thus, this approach has a high industrialization potential, with significant advantages over hydrolysis or hydrothermal techniques.

More information at: https://bit.ly/3BvQjzP



DII - Dipartimento di
Ingegneria Industriale
Tel. +39 0461 282500 - 2503
dii.supportstaff@unitn.it