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Rare Earth and Actinide Materials

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Message from the Guest Editors

Ancient Greek philosophers used the term “earth” to refer to all solid matter—materials—of the Universe. After two millennia, the term has survived in references to alkaline earth and rare earth (RE) groups of elements in the periodic table. The latter commonly includes lanthanides, yttrium, and (arguably) scandium. While most abundant RE elements (Sc, Y, La, and Ce) are indeed rarer than most abundant alkaline earth metals (Ca and Mg), rare earth are critical for the creation materials used by modern society. Indeed, they span the applications from permanent magnets and superconductors to catalysts, ceramics, and environmental barrier coatings. Among actinides, only thorium was widely used in material design outside of the nuclear field. The chemistry of rare earth elements and the structure of their compounds is often used as a guide to actinides; lanthanides are formed as fission products and play a role in the design and reprocessing of nuclear materials. This Special Issue is devoted to rare earth and actinides. Expert submissions related to experimental research and computations on rare earth and actinide materials will be considered for publication.





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Message from the Editor-in-Chief

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