Abstract:
Nuclear energy, an essential part of the energy mix, requires an optimal fuel cycle. The fuel materials are studied for their properties and their production, recycling and disposition processes. The first Symposium on The Scientific Basis of the Nuclear Fuel Cycle of the European Material Research Society (EMRS) was held at the EMRS 13 Spring Meeting Strasbourg May 27e31, 2013. Symposium E dealt with fuel production, post-irradiation examination, partitioning and recycling, as well as with waste form materials and involved 105 experts from 17 countries. Symposium E included sessions dealing with materials ranging from ores and minerals, concentrates, fresh and irradiated fuels, and, with waste form materials. Macro-properties such as thermo-dynamical, thermo-physical and mechanical as well as micro-structural analysis of these fuel materials are discussed for example comparing properties prior and after irradiation. In addition, all process including production, irradiation, reprocessing, recycling and conditioning are treated in an analytical way.

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