Contribution ID: **13** Type: **not specified**

Release of volatile fission products (Xe, Kr, I, Cs) implanted in polycrystalline UO2

Tuesday 5 November 2019 17:39 (3 minutes)

Under irradiation in nuclear reactors, the microstructure of oxide nuclear fuel changes. To improve the modeling of the UO2 fuel behavior under irradiation, it is necessary to understand the elementary mechanisms of fission products diffusion. Among them, rare gas Xenon and Krypton represent 30% of created elements moreover fission products such as Iodine and Caesium are corrosive for the clad. Our experimental work consists in the measurement of the release kinetics of stable isotopes of these fission products by Knudsen Cell Mass Spectrometry. In that aim, 8mm diameter-1 mm height fresh polycrystalline UO2 pellets are implanted with different concentrations in 129Xe, 83Kr, 127I, 133Cs to understand the effect of the fission products density on the diffusion. The release kinetics is studied either during the heating at a given heating rate from room temperature up to about 1400℃ or during isothermal annealing.

At the same time, we are trying to model the mass spectrometer signal obtained to deduce information about the fission gas and products transport.

Authors: CHATAIN, Sylvie (CEA Saclay); Mr ALPETTAZ, Thierry (CEA Saclay); Dr CARLOT , Gaëlle (CEA Cadarache); Dr LECHELLE, Jacques (CEA Cadarache)

Presenter: CHATAIN, Sylvie (CEA Saclay)

Session Classification: Poster flash talks