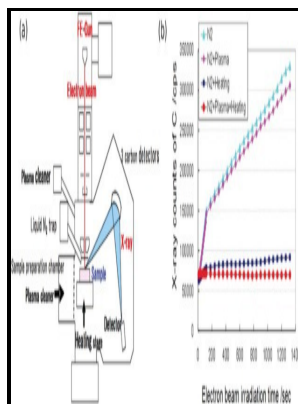


Electron-probe microanalysis of irradiated materials

Institution of Mining and Metallurgy - Electron microprobe



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Electron probe micro

In the early 1940s, they built an electron microprobe, combining an electron microscope and an energy loss spectrometer.

Electron probe microanalysis of irradiated nuclear fuel: an overview

The resulting chemical information is gathered in textural context.

Electron microprobe

Because of the thin nature of the carbon films, only low voltages 5-15 kV can be used in such specimens. Rare earth element concentrations at the SiC-IPyC interface of AGR1-433-007 were a factor of ten higher than at the SiC-IPyC interfaces measured in particle AGR1-433-003. Since these fossils are often compressed into a 2D film, it can be difficult to deduce what features were what: a famous example is that of triangular extensions in , which were interpreted as either legs or extensions of the gut.

Microbeam analysis of irradiated materials: practical aspects

Destructive post-irradiation examination was performed on AGR-1 fuel Compact 4-1-1, which was irradiated to a final compact-average burnup of 19. Am occurs in the matrix and with some high-rare-earth inclusions, and occasionally as high-Am inclusions in samples without rare-earth elements. On the contrary, the altered domains of monazite patchy zones show no mottled contrast, suggesting an ordered crystalline structure.

Microbeam analysis of irradiated materials: practical aspects

Over the past decades, extensive studies have been conducted to evaluate the fission product release, diffusion on Ag, Pd and Cd in the SiC layer and the TRISO coating system, and post-safety-test performance. The Idaho National Laboratory INL is investigating U-Pu-Zr alloys with low concentrations of minor actinides Np, Am and rare-earth elements La, Ce, Pr, Nd as possible nuclear fuels to be used to transmute minor actinides.

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