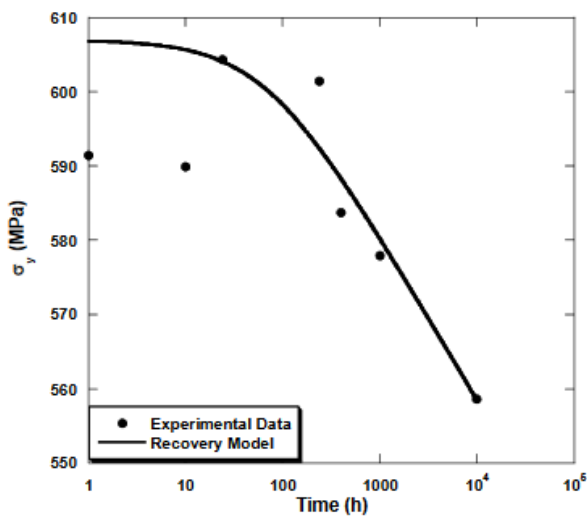


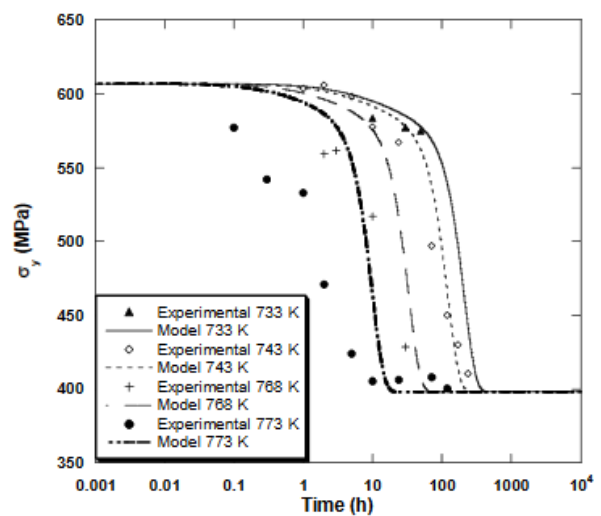
# A coupled recovery/recrystallisation model for zirconium alloys. Influence of hydrogen

## Abstract

During transport of spent Zircaloy-4 fuel rods, cladding temperatures can be expected to rise well over 400°C for transportation periods longer than 10 days. The kinetics of creep under these conditions will be controlled by both strain hardening and the softening effect of static annealing of cold work and irradiation defects. This paper will focus on the development of a coupled recovery/recrystallisation model for Zircaloy-4 from 400 – 520°C.



**Figure 1**  
Yield stress evolution of CWSR  
Zircaloy-4 (400°C)



**Figure 2**  
Yield stress evolution of CWSR  
Zircaloy-4 (460 – 520°C)