

## Solubility of Hydrogen in V-4Cr-4Ti and Lithium

Jong-Hee Park<sup>C, S, 1</sup>

*Argonne National Laboratory, Argonne, IL, U.S.A.*

*jhpark@eltronresearch*

Determination of the hydrogen solubility and transport behaviors for the V-4Cr-4Ti and lithium for low hydrogen partial pressure ( $p_{H_2} = 9.09 \times 10^{-4}$  torr, or  $1.21 \times 10^{-1}$  Pa), such as in nuclear fusion environments at 400-700°C has been successfully determined by (ad/de)sorption under the hydrogen flowing system. Hydrogen concentration in both materials decreased as T increased, and the ratio of the hydrogen concentration in liquid lithium and V-4Cr-4Ti (hydrogen distribution ratio, R) increased with temperature, e.g., R was 17 at 400°C and 80 at 700°C. Desorption of hydrogen from V-4Cr-4Ti is a thermally activated process and the activation energy of the desorption rate is 0.405 eV.

<sup>1</sup> present address: Eltron R&D, 4600 Nautilus Court South, Boulder, CO 80301