

# SEPARATION AND RECOVERY OF HEAVY METALS FROM WASTEWATERS BY pH PARAMETRIC PUMPING

**Michela Dreusch and Wolfgang H Höll**

*Forschungszentrum Karlsruhe; ITC-WGT  
P.O. Box 3640; D-76021 Karlsruhe;*

## **ABSTRACT**

Parametric Pumping represents a possibility for the separation of mixtures of heavy metals, e.g., from wastewaters or diluted process waters, in order to recover them as single components and recycle them. The separation is achieved using anion exchangers by variation of the pH value or a combination of pH value and temperature. The process can be enhanced by addition of an appropriate complexing agent. The process is based on the periodic and alternate contact of the ion exchanger with two solutions differing in the value of parameters influencing the equilibrium of the sorption of the heavy metals with the ion exchanger.