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DESCRIPTION OF GRAIN BOUNDARY-SUPPORTED INTERDIFFUSION IN THIN FILMS BY AN EFFECTIVE DIFFUSION PARAMETER

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Abstract

Short circuit diffusion along grain boundaries, interfaces and surfaces strongly support the mixing process in thin polycrystalline multilayers. For many practical considerations such a complex type of interdiffusion is sufficiently described by one single parameter, the effective diffusion coefficient. On the basis of a computer study the present paper deals with the influence of the grain boundary structure and its change during diffusion onto the mean diffusivity. An estimation of bulk diffusivities using structural data and the mean diffusivity is suggested.