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Yoshinaga H., Morozumi S.

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The Solute Atmosphere Round a Moving Dislocation and
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H. YOSHINAGA and S. MOROZUMI
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Abstract

Setting an imaginary tetragonal lattice round a dislocation, the concentration change at each lattice point was calculated in a very short time interval from the jump frequencies of solute atoms between the nearest lattice points, considering the interaction between a solute atom and the dislocation. Repeating this calculation with a high-speed computer, the forming process of a solute atmosphere round a moving dislocation and the stress effected on the dislocation by this atmosphere were obtained. This method is for a non-steady state, from which, if required, a steady state can be obtained as the limiting case.