

Materials Physics

Questions

1. Molecular Dynamics, empirical potentials
2. Barostat, thermostat
3. Friedel model
4. Finnis-Sinclair potential, Embedded potential
5. Hartree approximation, Hartree-Fock method
6. Second quantization
7. Density functional theory, Local density approximation
8. Point defect, vacancy dynamics
9. Phase rule
10. Binary systems
11. Thermodynamics of precipitation
12. Generalized diffusion
13. Spinodal decomposition, Chan and Hilliard theory
14. Ni₃Al superalloy, Phase field theory
15. Elementary theory of dislocations
16. Field theory of dislocations
17. Variational approaches for dislocations
18. Statistical physics of dislocations

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