5B2 Electric Microfield Distribution in Weakly Turbulent Electron-Ion-Systems.*

K.-H. SPATSCHEK, Ruhr-Universität Bochum.-- Collective and individual contributions to the electric microfield distribution are calculated. The procedure starts with the microscopic Klimontovich equations. Using a method similar to that of Bohm and Pines[1] with a generalization to electron-ion-systems by Kurasawa and Matsuura[2] we write the hamiltonian in individual and collective coordinates. After taking the ensemble average we get a hierarchy which for a decomposable hamiltonian may be solved by separation. Introducing this solution into the general formalism of the electric microfield distribution the total distribution is obtained by convolution. Numerical results are presented for special cases including the model of an electron-system with a smeared-out ion-background.

/1/ D. Bohm and D. Pines, Phys. Rev. 92, 609 (1953)
/2/ T. Kurasawa and K. Matsuura, Bull. Electrotechn. Lab. 31, 1269 (1967)