**Quantum-like Corrections and Tomography in Beam Physics**, R. FEDELE, Dipartimento Di Scienze Fisiche, Universita' "Federico II" and INFN, Napoli, Italy; P.N. LEBEDEV, V.I. MAN'KO, Physical Institute, Moscow, Russia - A novel tomographic approach to charged-particle beam physics is suggested in the framework of Thermal Wave Model (TWM) [1]. It is shown that the particle beam transport in the phase-space can be described in terms of a marginal distribution which has the features of a classical probability distribution, including its positive definiteness. A comparison among this probability distribution, Wigner function and Husimi function, recently used in TWM to provide for a quantum-like phase-space description [2], is presented. It is shown that the above marginal distribution satisfies a Fokker-Planck-like equation as well as contains all the information of the Wigner function, even the latter is not positive definite. Nevertheless, one can directly start from the classical single-particle physics where the potential is given and go directly to the Fokker-Planck-like equation which incorporates all the quantum-like effects of TWM.

[1]    R. Fedele and G. Miele, Nuovo Cimento D13, 1527 (1991).
[2]    R. Fedele, F. Galluccio, V.I. Man'ko, and G. Miele, Phys. Lett. A209, 263 (1995).