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**The fully magnetized Fokker-Planck and Balescu-Lenard-Guernsey equations.**[1] DING LI, Institute of Physics, Chinese Academy of Sciences,, CHAO DONG, WENLU ZHANG, Institute of Physics, Chinese Academy of Sciences, CAS WITH LLNL COLLABORATION — In the magnetized and laser fusion plasma, space and astrophysical plasma, the particles' gyro-radii can be smaller than the Debye length when there is a strong magnetic field. This will have a significant influence on collision dynamics and many physical processes such as parallel velocity slowing down, temperature relaxation, particle diffusion, thermal transport, and so on. The fully magnetized Fokker-Planck equation is derived in which collision term includes a uniform magnetic field meanwhile the analytical expressions of magnetized Fokker-Planck coefficients have been derived explicitly within the binary collision model. The fully magnetized Fokker-Planck kinetic equation is also manipulated into the Landau form. The fully magnetized Balescu-Lenard-Guernsey equation is derived in which a uniform magnetic field is included in collision term by employing the Fokker-Planck approach. By using the fluctuating electrostatic field for quiescent plasmas, the magnetized Fokker-Planck coefficients are calculated explicitly based on the wave theory which includes the collective effects in a proper manner. Manipulating the magnetized Fokker-Planck collision term into the Landau form, the magnetized Balescu-Lenard-Guernsey collision term is obtained.

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