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## References

**Craig: On the frequency function of  $xy$**

**Craig-1936**

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**Uhlenbeck et al.: On the Theory of the Brownian Motion    Uhlenbeck-Ornstein-1930**

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G. E. Uhlenbeck and L. S. Ornstein. “On the Theory of the Brownian Motion”. In: *Physical Review* 36.5 (Sept. 1930), pp. 823–841. DOI: [10.1103/physrev.36.823](https://doi.org/10.1103/physrev.36.823).

Abstract: With a method first indicated by Ornstein the mean values of all the powers of the velocity  $u$  and the displacement  $s$  of a free particle in Brownian motion are calculated. It is shown that  $u - u_0 \exp(-\beta t)$  and  $s - u_0 \beta [1 - \exp(-\beta t)]$  where  $u_0$  is the initial velocity and  $\beta$  the friction coefficient divided by the mass of the particle, follow the normal Gaussian distribution law. For  $s$  this gives the exact frequency distribution corresponding to the exact formula for  $s^2$  of Ornstein and Fürth. Discussion is given of the connection with the Fokker-Planck partial differential equation. By the same method exact expressions are obtained for the square of the deviation of a harmonically bound particle in Brownian motion as a function of the time and the initial deviation. Here the periodic, aperiodic and overdamped cases have to be treated separately. In the last case, when  $\beta$  is much larger than the frequency and for values of  $t \gg \beta^{-1}$ , the formula takes the form of that previously given by Smoluchowski.

Sewall Wright. “The method of path coefficients”. In: *The Annals of Mathematical Statistics* 5.3 (Sept. 1934), pp. 161–215. DOI: [10.1214/aoms/1177732676](https://doi.org/10.1214/aoms/1177732676).