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A Newtonian Derivation of the Equilibrium Velocity Distribution for an Ideal Gas JAMES WOODYARD, West Texas A&M University, JAMES ESPINOSA, None — In the latter part of the nineteenth century, Boltzmann derived the equilibrium properties of an ideal gas by using the molecular chaos hypothesis. Some mathematicians such as Clifford Truesdell believe that the currently accepted proof of this assumption is flawed. We also believe that the application of statistical methods to this problem is resorting to nonphysical arguments that contradict the foundations of Newtonian physics. We use a modified Ritz force law to derive the equilibrium velocity distribution of an ideal gas.

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None

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