Schrodinger equation for linear potential. The stark effect was investigated by exact and perturbed method; the Airy functions $Ai(x)$ and $Bi(x)$ are Eigen functions of the unperturbed linear potential, but the $Bi(x)$ solution diverges for large value and does not satisfy the condition $\psi(\infty) = 0$ the $Bi(x)$ is excluded.

The exact solution of stark effect leads to eigenvalue relation of:

$$E_n = \left(n + \frac{1}{2}\right)\frac{\bar{F}\hbar}{\sqrt{m}} + \frac{(F+\bar{F})^2}{2\bar{F}^2}, \bar{F} = e \in_0 .$$

The quantized energy is given in terms of the solution of the well-behaved zeros of the Airy function $Ai(-\sigma_n)$ with $E_n = \mathcal{E}_0\sigma_n$. The eigenvalues obtain by the perturbation is so near to the Exact result but distinction of exactness due to perturbation.

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