Homework for Advanced Quantum Mechanics.   No. 5

Please send the pdf file to my email: zhaoruitong1986@163.com.

Deadline 2016-11-09 before class.

1. Solve the uncertainty of electron velocity in an atom, with the dimension of atom $\triangle r = 10^{-10}m$.

2. Prove: Tr(XYZ)=Tr(ZXY)=Tr(YZX).

3. Prove: $\langle [A, B] \rangle$ is imaginary and $\langle \{A, B\} \rangle$ is a real number.

4. $A = \begin{pmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{pmatrix}$. Can A be diagonalized? If yes, diagonalize it.