QM2

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1 Lec 1

1.1 Stuff from QM1

The course is very important. More important than QM1. QM1 teaches special problems. Real quantum system Need approximation methods. QM - linear vector space. SHO, ladder operator Solve directly or use ladder operators. Clebsch-Gordon, Addition of Angular momentum. We study appproximation methods. Perturbation theory.
Eg: He-4 cannot be solved exactly using the Schrodinger Equation. But variational methods are good for this. Require an approximate numerical solution. Scattering: You scatter particles from a potential scattering center (Rutherford scattering)

1.2 Review

Ladder operators are generalizable to the H-atom too.
Postulates of QM

- State described by an infite dimensoonal vector $\psi(x,t)$
- All attributes to be specified in the $|x>$
- Normalization: Inner product is 1 or dirac delta.
- Observables are replaced by hermitian operators.