7 Postulates of quantum mechanics

- $|\psi\rangle$, the “ket” completely describes the system. The “ket” resides in some linear vector space, which we may depict as $V$.

- A measurable quantity is described mathematically through an operator, say $A$. The measurement is fully described by the action of the operator $A$ on a complete set of elements in $V$. The expectation value of such a measurement is given by the bra-ket $\langle \psi | A | \psi \rangle$, which is known as the expectation value of $A$ with respect to $|\psi\rangle$.

- Any given measurement can only result in one of the eigenstates of the operator $A$.

- The probability of the measurement yielding the eigenstate $|a_n\rangle$ of $A$ is $|\langle a_n | \psi \rangle|^2$.

**Homework**: As stated in class, justify the stated postulates through your knowledge of the Stern-Gerlach experiments.