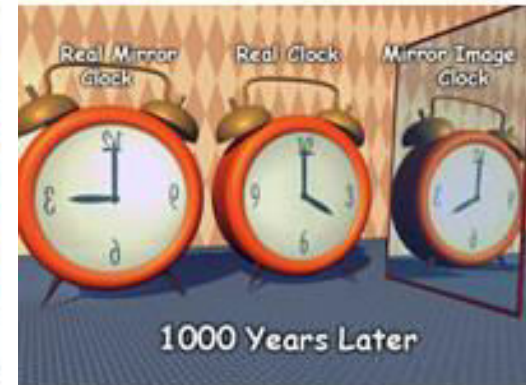
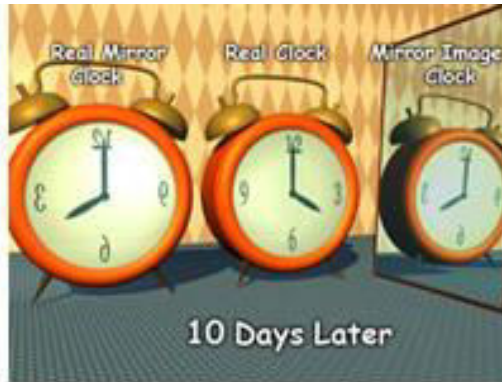
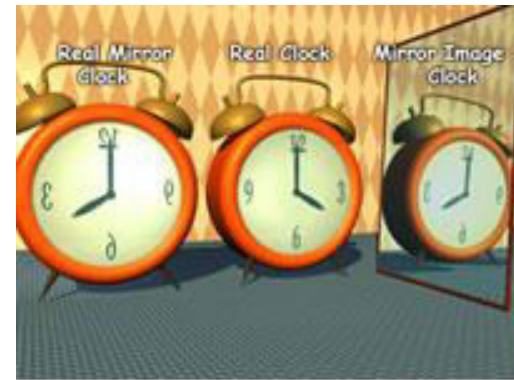


Spontaneous broken symmetry in subatomic physics

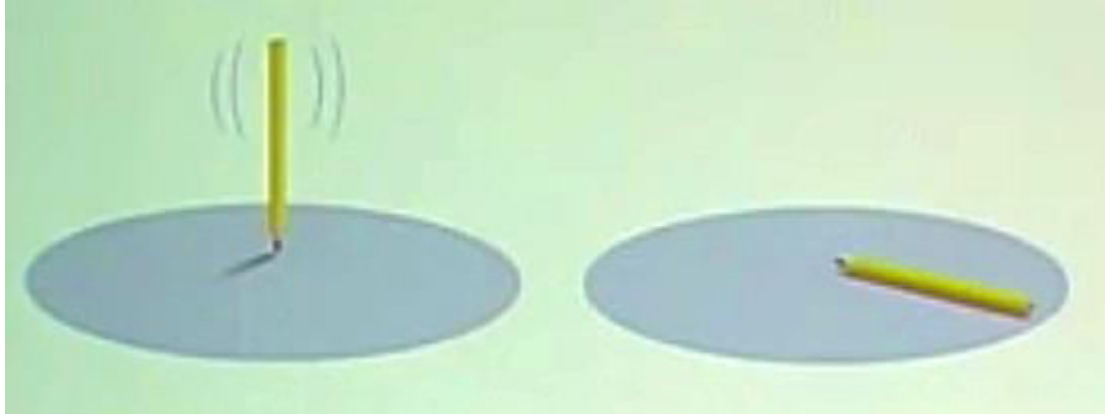
Dyk Chung Nguyen

Plan

- Symmetries and broken symmetries
- Symmetry groups
- Fundamental forces
- Charge violation
- Parity violation
- CP-violation
- Conclusion



Symmetries and broken symmetries



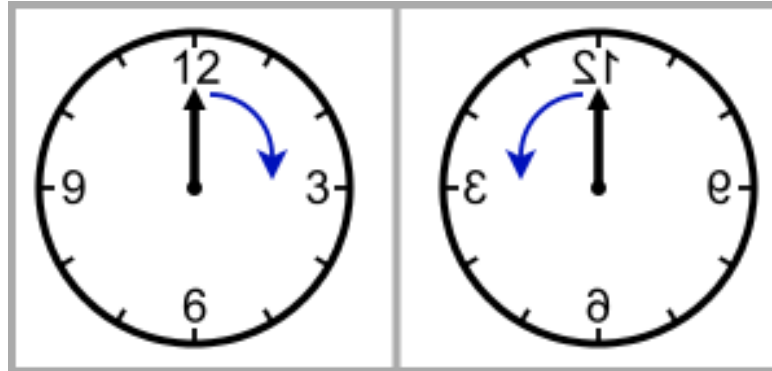
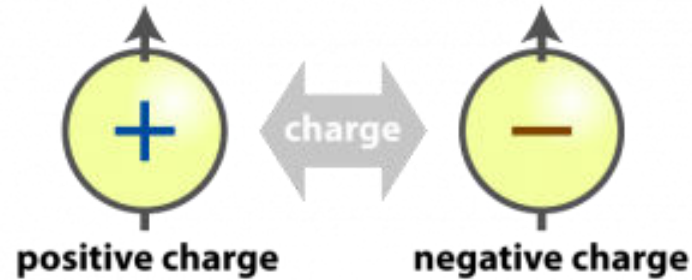
Spontaneous symmetry breaking



Small explicit symmetry breaking

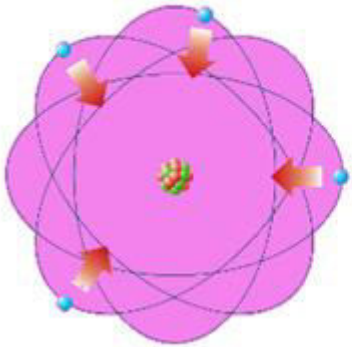
Symmetry groups

- C-symmetry
- P-symmetry
- T-symmetry

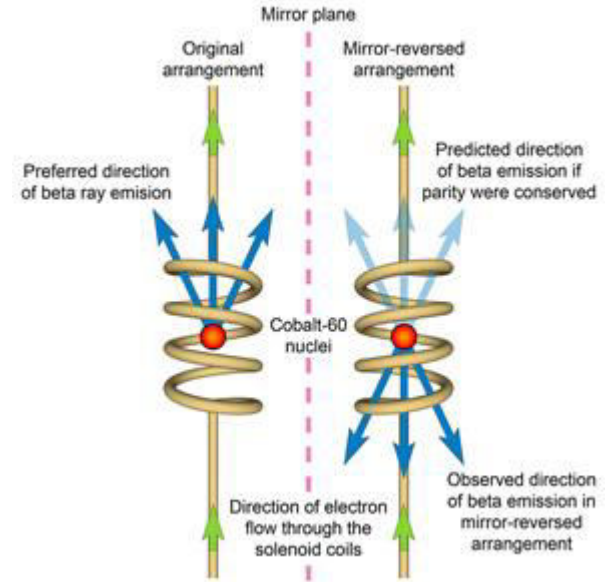
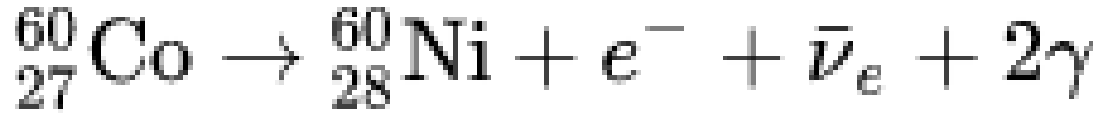


Fundamental forces

- Electromagnetic force
- Weak nuclear force
- Strong nuclear force
- Gravitation

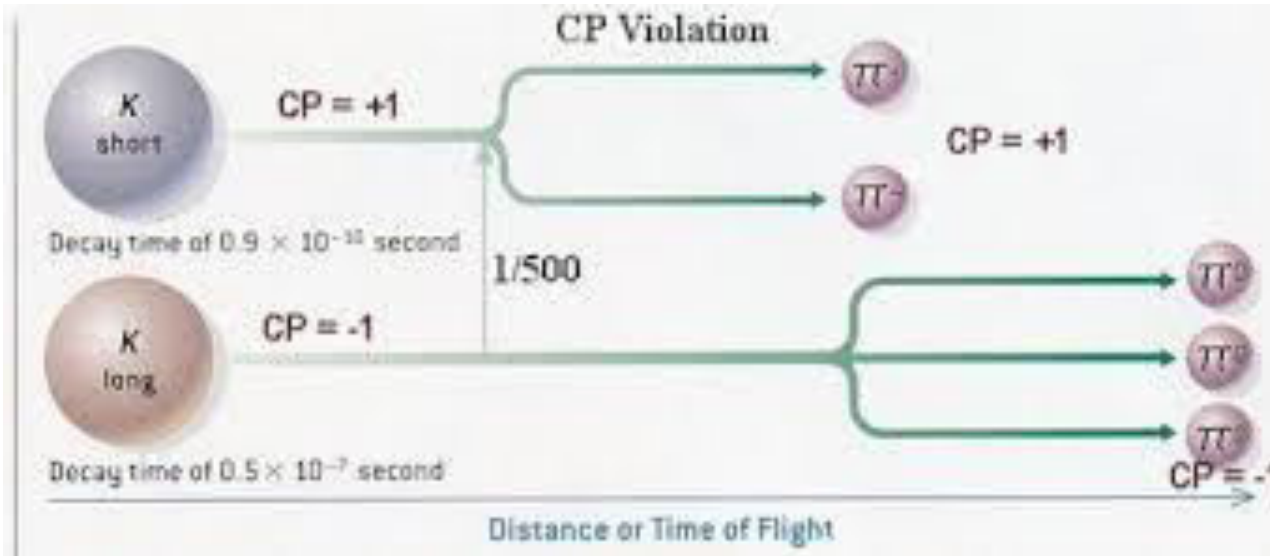


Parity violations in weak interactions

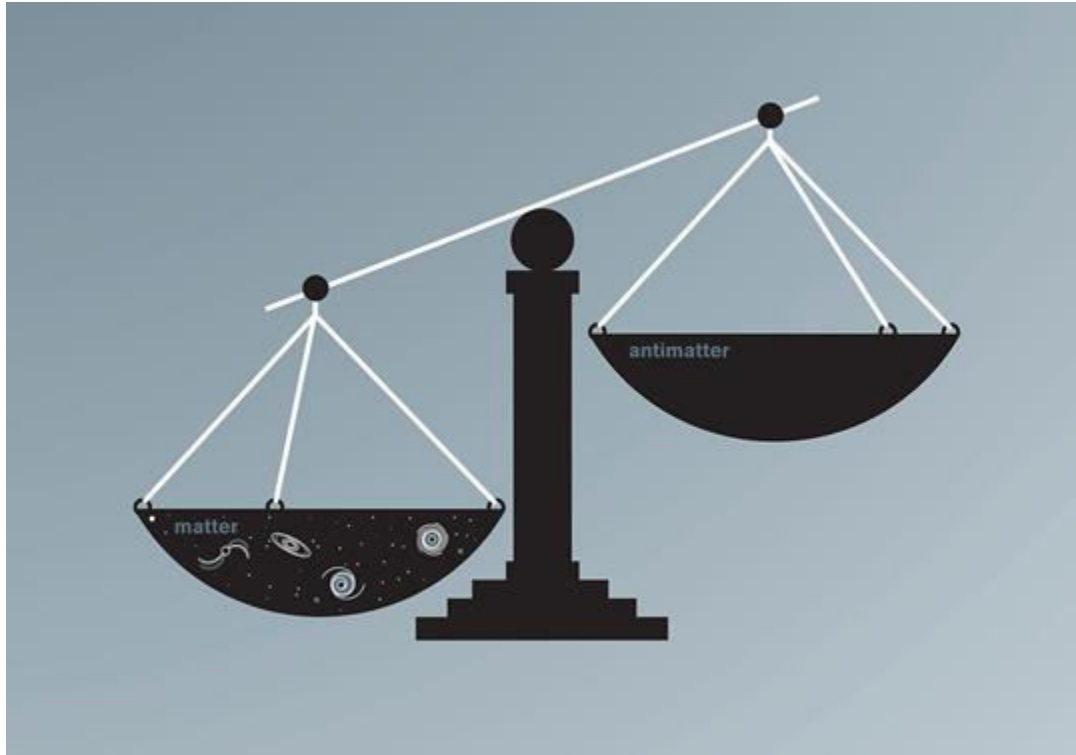


Wu experiment

CP-violation



Matter–antimatter imbalance



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Thank you for your attention