

# Charge-breaking opportunities for the early Universe

*Tuesday 22 October 2024 16:10 (20 minutes)*

The hot early Universe must have lived through phase transitions around the electroweak epoch. Multi-Higgs models often possess scalar potentials which, at finite temperatures, exhibit several competing minima and may lead to phase transitions of peculiar nature. In this talk, I will show that there exists a regime in the two-Higgs-doublet model in which thermal evolution of the early Universe passes through an intermediate phase with a charge-breaking vacuum. This regime leads to a sequence of phase transitions and it can also be tested at colliders. I will also show that multi-Higgs-doublet models support phase transitions in which two neutral minima are separated by a charge-breaking bubble wall, with remarkable and yet unexplored cosmological consequences.

**Primary author:** Prof. IVANOV, Igor (Sun Yat-sen University, Zhuhai, China)

**Presenter:** Prof. IVANOV, Igor (Sun Yat-sen University, Zhuhai, China)

**Session Classification:** Contributed Talks