



# KCETA Colloquium

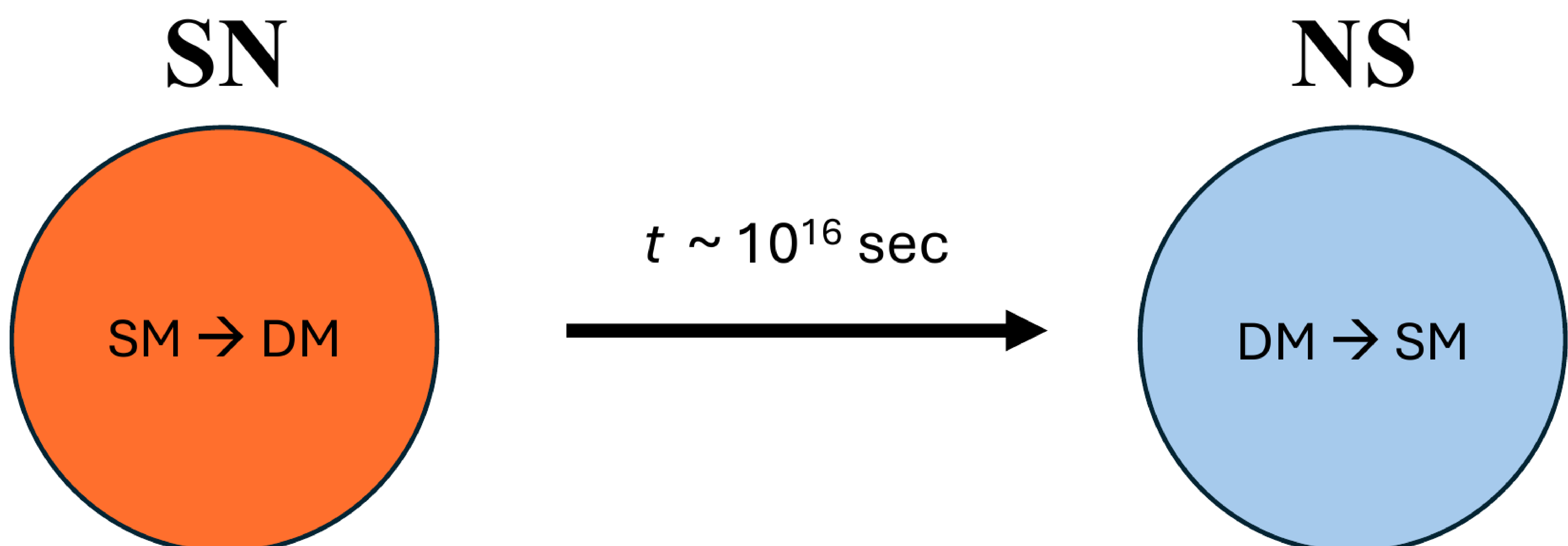
## Neutron stars as probes of dark sectors

Thursday, May 7, 2026

Kleiner Hörsaal A (CS) 15:45 - 17:00

Prof. Maxim Pospelov (University of Minnesota)

Neutron stars are born in violent supernova explosions, when the temperatures reach tens of MeV, replicating, in some aspects, the environment of the very early Universe. I investigate faintly interacting dark matter particles that get produced in the explosion and stay gravitationally bound to the newly born neutron star. I show that the late time annihilation of dark matter back to the Standard Model particles will lead to an additional source of heat generation that can be incompatible with observation of stars' surface temperatures. Thus, current observations of old neutron stars set uniquely nontrivial constraints on the space of dark matter models. I also consider constraints on heavy dark matter capture that turn neutron stars into black holes and show that the previously derived constraints apply to a much larger class of dark matter models.



Please note: The colloquium will also be live-streamed to B401 SR 410 (CN).