

Fizički odsjek, PMF, Sveučilište u Zagrebu
Bijenička cesta 32

Seminar Fizičkog odsjeka

Vrijeme (s.t.)

Mjesto

utorak 1. 7. 2014., 11:15 h

predavaonica F201

Bubble Baryogenesis

Gilly Elor

Center for Theoretical Physics, Massachusetts Institute of Technology (MIT),
Cambridge, USA

I will discuss a new mechanism of baryogenesis in which a scalar baryon undergoes a percolating first-order phase transition in the early Universe. The potential barrier that divides the phases contains explicit B and CP violation and the corresponding instanton that mediates decay is therefore asymmetric. The nucleation and growth of the asymmetric bubbles dynamically generates baryons, which thermalize after percolation; bubble collision dynamics can also add to the asymmetry yield. I will give an example in the context of an explicit toy model that undergoes bubble baryogenesis and detail the numerical study of the evolution of the baryon asymmetry through bubble nucleation and growth, bubble collisions, and washout. I will briefly discuss more realistic constructions and possible follow up directions.

C. Cheung, G. Elor, L.J. Hall, Phys. Rev. D85 (2012) 015008
arXiv:1104.0692 [hep-ph]

C. Cheung, G. Elor, L.J. Hall, P. Kumar, JHEP 1103 (2011) 042
arXiv:1010.0022 [hep-ph]

Voditelji seminara FO
Damir Pajić i Ivica Smolić