

Fizički odsjek, PMF, Sveučilište u Zagrebu
Bijenička cesta 32

Seminar Fizičkog odsjeka

Vrijeme (s.t.)

Mjesto

utorak 21. 4. 2015., 10:15h

predavaonica F201

Universe in a Single Atomic Nucleus

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This is a **popular, outreach talk** for non-specialists like students, researchers outside high energy particle and nuclear physics, or for laypersons.

As an introduction, I discuss the “suchness” or dual nature of elementary particles, discussing some interesting concepts introduced to quantum mechanics and modern physics from the beginning of the 20th century. The main topic of my talk is the formal similarity between the Little Bangs of high energy heavy ion collisions and the Big Bang of our Universe, the analysis of the similarities and also the limitations of these similarities as well as the differences of the scales.

I also mention that the nuclei of the atoms in our bodies were burnt in stars and the end of our life on Earth will likely be a stellar event, the growth of our Sun to a red giant star. I will also highlight some of the astrophysical observations that suggest that we live in a Universe with accelerating expansion, which suggests that the fate of our Universe will be unlimited expansion and related cooling and emptiness.

In the closing part of my talk I will mention the Hungarian Science Clubs movement that I have initiated in Hungary, and I will demonstrate how one can play with elementary particles, how to keep them “at hand” and perhaps even to “have them” in our pocket: I will play some Little Bangs, Big Bang and show how to find a Higgs boson in a way that is easily understandable for laypersons.

As an outlook, if time permits I will also discuss the Einstein Telescope project, that allows for an indirect investigation of one of the most fundamental questions: Is our Universe alone or do we live in Multiverses, in the World of Worlds?

Voditelj seminarâ FO
Damir Pajić i Ivica Smolić