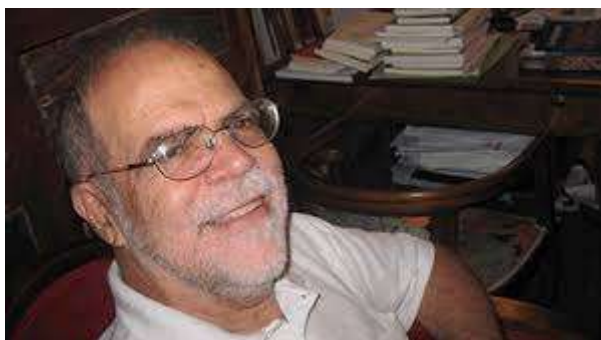




Latvijas Zinātņu akadēmijas sēde
trešdien 20. janvārī plkst. 15 LZA Portretu zālē
Rīgā, Akadēmijas laukumā 1



Prof. Antonio Bianconi

([Rome International Center for Materials Science Superstripes](#), Rome, Italy)

lekcija

**„From quantum complex matter to quantum
biology: The emergence of a new physics in the
XXI century”**

(angļu valodā)

Abstract

Advances in this XXI century in the science of complex quantum matter, are leading to a shift of paradigm in our understanding of the world of living matter.

I will give a perspective of experimental evidence for the emergence of phenomena of quantum coherence near room temperature [1,2] and in our macroscopic world, while some years ago the quantum world was supposed to be confined at very low temperatures and only in the atomic and subatomic scale.

New experiments in material science together with advances in quantum phenomena in biology [3] and in the science of complexity [4] are leading to a shift of paradigm in the physical sciences.

Quantum complex materials such as high temperature superconductors and living matter are both non-equilibrium and fine tuned systems. A new physics of active matter and adaptive matter is emerging looking for the general laws for jiggling atoms at the basis of the living state of matter.

1. Campi, G. *et al.* Inhomogeneity of charge-density-wave order and quenched disorder in a high-Tc superconductor. *Nature* **525**, 359-362 (2015). URL <http://dx.doi.org/10.1038/nature14987>. [1509.05002](https://doi.org/10.1509.05002).
2. Bianconi, A. & Jarlborg, T. Superconductivity above the lowest earth temperature in pressurized sulfur hydride. *EPL (Europhysics Letters)* **112**, 37001+ (2015). URL <http://dx.doi.org/10.1209/0295-5075/112/37001>.
3. Poccia N., Ansuini A. and Bianconi A Far from Equilibrium Percolation, Stochastic and Shape Resonances in the Physics of Life *Int. J. Mol. Sci.* 2011, *12*, 6810-6833; doi:10.3390/ijms12106810
4. Poccia, N. *et al.* Changes of statistical structural fluctuations unveils an early compacted degraded stage of PNS myelin. *Scientific Reports* **4**, 5430+ (2014). URL <http://dx.doi.org/10.1038/srep05430>

Informācija:

Dr.sc.ing. Sofja Negrejeva

Latvijas Zinātņu akadēmijas

Fizikas un tehnisko zinātņu nodaļas zinātniskā sekretāre

Tālrunis: 67223633, mob.: 26024436, fakss: 67821153

E pasts: fizteh@lza.lv

Papildu informācija [šeit](#) un LU [mājaslapā](#)