

Seminarium Zakładu Fizyki Teoretycznej

Departament Badań Podstawowych
Narodowego Centrum Badań Jądrowych

19 kwietnia 2017 r. (środa), o godz.12:15

pawilon NCBJ, sala 22, Hoża 69

Prof. dr hab. Krzysztof SACHA

(Uniwersytet Jagielloński, Instytut Fizyki)

"TIME CRYSTALS"

Abstrakt

Time crystals are related to spontaneous self-organization of many body systems in time in analogy to the formation of space crystals. Research of time crystals can be divided into two branches. In the first branch researchers look for systems that can reveal spontaneous breaking of time translation symmetry. In the other branch time crystals are modeled with the help of periodically driven systems similarly as space periodic potentials are used to model properties of space crystals in condensed matter physics. We show that discrete time translation symmetry can be spontaneously broken and the so-called discrete time crystals can form - the phenomenon that has been demonstrated in recent experiments. We show also that a number of solid state phenomena can be observed in the time domain in periodically driven systems. That is, Anderson localization in the time domain induced by disorder in time and Mott insulator phase in the time domain can be realized in ultra-cold atomic gases.

Serdecznie zapraszamy,

M. Kowal, W. Piechocki, L. Roszkowski, J. Skalski, L. Szymanowski