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Time crystals and time engineering

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Streszczenie:

Time crystals are characterized by regularity that single-particle or many-body systems manifest in the time domain, closely resembling the spatial regularity of ordinary space crystals. Crystalline structure in time can form spontaneously when a many-body system breaks time translation symmetry of the Hamiltonian but it can also be engineered by suitable external time-periodic driving of a system. Time engineering not only allows one to reproduce condensed matter phases in the time domain but also gives the opportunity to create novel objects that have not been realized so far. As an example, the concept of Anderson molecules will be described which form not due to attractive interactions between atoms but thanks to destructive interference phenomena.