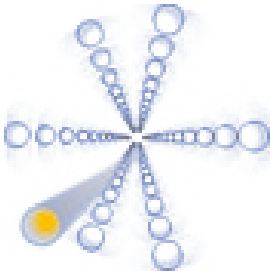

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PS3-29 Nuclear Fusion on Ordered Crystal Target with Participation of Monochromatic Beams of Light or Middle Isotopes

Thursday, 9 October 2014 17:00 (1h 30m)

The problem of optimization of "accelerating (beam)" fusion in crystal lattice is discussed. It is shown that in monocrystal targets like LiD the rate of fusion process with the participation of both target nuclei and beam of fast nuclei, directed at Lindhard angle, may be increased by 10-100 times compared to the alternative process of deceleration on atomic electrons. Such changes are based on the use of specific channeling physics regime of motion - "overbarrier motion".
Another method for radical optimization of "accelerating (beam)" fusion is connected with resonant tunneling effect. This leads, in combination with the use of particle beams with optimum energy and energy spread, which correspond to total transparency "window"of reaction barrier, to the possibility of positive nuclear fusion energy release on one atomic monolayer! Such effect can be regarded as nuclear super absorption of accelerated beam. The possibility of nuclear reactions C12+O16 and C12+O18 at such motion regime with positive energy release is examined.

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