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# iCAN for structured electron and ion acceleration

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iCAN project opens new and unmatched possibilities both for electron and ion acceleration. The availability of a huge number of coherent to each other laser pulses allows for efficient use of the laser field itself for electron acceleration. A periodic dielectric structure can be used at intensities of around 1012 W/cm2 and provide accelerating fields on the order of GV/m. Due to the simplicity of the structure, replaceable single shot structures can be driven to plasma condition and the accelerating field will be increased further to the strength of TV/m. Hybrid simulations of these structures will be presented.
Simulations suggest [M Chen, A Pukhov, TP Yu, ZM Sheng, PRL 103, 024801 (2009)] that nanostructured targets may significantly enhance efficiency and quality of ion acceleration in the light sail regime. Yet, the laser pulse must be perfectly aligned with the nanostructured target for the mechanism to work. The iCAN principle has all the capability to meet this requirement.

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