

Abstract Submitted
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Wakefields in Woodpile Accelerator Structures¹ GREG WERNER,
University of Colorado — The woodpile structure is a promising 3D photonic crystal for accelerating particles in a waveguide mode with speed-of-light phase velocity, driven by laser sources at optical frequencies. Using the simulation framework VORPAL, wakefields in possible woodpile structures have been simulated, with emphasis on eliminating unphysical transition radiation upon injecting the drive beam into the simulation. Operating at optical frequencies, the woodpile structure's small size would limit the maximum bunch charge (though a high repetition rate would compensate for the high bunch charge, yielding a high current and eventually luminosity in an accelerator); calculation of the wakefields enables estimation of this maximum bunch charge.

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Greg Werner
University of Colorado

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