

P5 Town Hall at SLAC



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Dielectric Laser Accelerators

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Particle acceleration in dielectric microstructures powered by infrared lasers, or “dielectric laser acceleration” (DLA), is a promising area of advanced accelerator research with the potential to enable more affordable and higher-gradient accelerators for energy frontier science and a variety of applications. DLA leverages well-established industrial fabrication capabilities and the commercial availability of tabletop lasers to reduce cost, with demonstrated axial accelerating fields in the GV/m range. Considerable progress has been made in this area over the last 7 years due to a large international collaboration of universities and government laboratories. This type of accelerator naturally operates with low bunch charge, microbunch durations on the sub-optical time scale, and high repetition rates. In the HEP application space, this unique parameter regime maps well onto indirect (missing momentum) dark matter search fixed target experiments.

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Session Classification: Contributed Remarks