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**Are two laser pulses (with half energy) better than one for ion acceleration?** NASHAD RAHMAN, BRENDEN MCHUGH, CHRIS ORBAN, Ohio State Univ - Columbus — Ultra-intense lasers can be used as a source of energetic ions for a wide range of applications. Many efforts are being made in order to optimize the usage of lasers to accelerate ions. An interesting approach is described in Ferri et al. 2019, in which two laser pulses of half energy arriving at an angle of incidence close to 45 degrees can achieve greater maximum proton energy than one pulse with the same total energy. For a variety of practical reasons, this enhancement has not yet been demonstrated experimentally. Through 2D3V Particle in Cell simulations, we examine whether this approach would enhance ion acceleration for the Extreme Light laser system at Wright-Patterson Air Force Base. This laser system has an intensity that is lower than the range explored by Ferri et al. 2019. We find that for this system that ion acceleration would be substantially enhanced by this approach.

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