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FLASH Pulse Stacker for FLASHForward double electron bunch generation upgrade and initial compression studies.

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A core study at the Plasma Wakefield Accelerator (PWFA) FLASHForward is the acceleration of an externally injected witness electron bunch in the wake generated by a driver electron bunch. To perform these external injection experiments the drive and witness electron bunches require a separation of the order of 100 microns. To generate the electron bunches a pulse stacker has been constructed and recently upgraded in the FLASH injector laser hutch. The pulse stacker uses the combination of a 1/2 wave plate, beam splitters and a delay stage to delay part of the injector laser pulse. The temporally separated pulses are used with the FLASH electron gun to generate two electron bunches which can be accelerated in the same FLASH RF bucket. In this contribution the tests of the upgraded pulse stacker and the initial double electron bunch compression studies will be presented.

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