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Laser pulse shaping for high gradient accelerators

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In many high gradient accelerator schemes, i.e. with plasma or dielectric wakefield induced by particles, many electron pulses are required to drive the acceleration of one of them. Those electron bunches, that generally should have very short duration and low emittance, can be generated in photoinjectors driven by a train of laser pulses coming inside the same RF bucket. We present the system used to shape and characterize the laser pulses used in multibunch operations at Sprac_lab. Our system give us control over the main parameter useful to produce up to five high brightness bunches with tailored intensity and time distribution. We use crosscorrelation with the fundamental of our laser system to have a characterization of the photocathode UV laser train with high resolution over a large time window.

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