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The FLAME laser at SPARC_LAB

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Plasma wakefield acceleration is the most promising acceleration technique known nowadays, able to provide very high accelerating fields (10–100 GV/m), enabling acceleration of electrons to GeV energy in few centimetres. Here we present some of the plasma related activities currently underway at SPARC_LAB using the high power laser FLAME and the LINAC. In particular, we will give an overview of all the experiments performed with the FLAME system, passing from the electron acceleration by LWFA to TNSA. Eventually, we will discuss the external injection scheme, allowing the possibility to accelerate high brightness electron bunches accelerated by a LINAC with the high accelerating field generated by a high power laser in a plasma and in particular we will show the current status of the experiment at SPARC_LAB.

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