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Gas-filled capillary discharge for tens-centimetre long plasma channel

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Novel plasma acceleration techniques are based on the use of on the excitation of large amplitude waves generated in well controlled plasma sources. The length of the plasma channel, as well as its homogeneity, is crucial for the development of compact accelerators. Gas filled capillary discharge have already proven their ability to confine plasma for long distances with relatively well controlled distribution. We aim to produce tens-centimeter-long capillaries in which we can ignite a discharge with relatively low potential and control its evolution along the interaction length. An investigation on the possible implementation of those sources will be presented.

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