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# External Electron Injection for the AWAKE Run 2b Experiment

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We summarize and explain plans for witness particle beam injection into wakefields for the AWAKE Run 2b experiments. In AWAKE, the plasma wakefields are driven by a self-modulating relativistic proton bunch. For Run 2b, we use a novel Rubidium vapor source that allows for a plasma density step. To demonstrate that the density step can stabilize the wakefield amplitude and to probe the longitudinal fields, we are planning on injecting a 20 MeV electron bunch produced by a photo-injector. We summarize the experimental challenges of this injection process and present our plans for the near future.

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