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Exploring the capabilities of the Trojan Horse method to drive soft and hard X-ray FEL's

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The underdense photocathode technique "Trojan Horse" is used to create extreme electron witness bunches utilized in free electron lasing process to produce brilliant few nm to Å level wavelengths. We present results of coupled PIC and FEL code simulations and discuss the capabilities and limits of the Trojan Horse method to create suitable FEL driver bunches as well as the optimal undulator conditions for them to generate high gain X-ray radiation.

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