

Abstract Submitted  
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**End-to-end plasma bubble PIC simulations on GPUs** KAI GER-  
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— Accelerator technologies play a crucial role in eventually achieving exascale com-  
puting capabilities. The current and upcoming leadership machines at ORNL (Titan  
and Summit) employ Nvidia GPUs, which provide vast computational power but  
also need specifically adapted computational kernels to fully exploit them. In this  
work, we will show end-to-end particle-in-cell simulations of the formation, evolu-  
tion and coalescence of laser-generated plasma bubbles. This work showcases the  
GPU capabilities of the PSC particle-in-cell code, which has been adapted for this  
problem to support particle injection, a heating operator and a collision operator on  
GPUs.

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