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Atomic hydrogen cleaning on GaAs photocathodes DAH-AN LUH, Stanford Linear Accelerator Center — The high-gradient-doping technique has been applied to GaAs photocathodes to overcome the surface-charge-limit effect while maintaining high polarization. However, the highly doped layer used in this technique is vulnerable to conventional 600°C heat-cleaning. One technique to reduce the heat-cleaning temperature is to use atomic hydrogen cleaning (AHC). We have systematically studied AHC using GaAs photocathodes, and have successfully reduced the heat-cleaning temperature to 450°C. The effect of AHC on polarization was minimal or zero in our study. In this presentation, we will show latest results from our study. Recent developments and future plans to integrate AHC into the SLAC linac injector polarized electron source will also be discussed.

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