

Abstract Submitted  
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**Precision extraction of  $a_{nn}$  from  $\pi^-d \rightarrow nn\gamma$  using  $\chi$ PT<sup>1</sup>** ANDERS GÅRDESTIG, University of South Carolina, DANIEL PHILLIPS, Ohio University — We present an updated chiral perturbation theory calculation of the  $\pi^-d \rightarrow nn\gamma$  reaction. By using other observables to constrain the unknown short-distance physics, we can drastically reduce the theoretical error in the extracted neutron-neutron scattering length. Further consequences of the results will be discussed.

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