The Maximum Patch Method for Directional Dark Matter Detection SHAWN HENDERSON, Massachusetts Institute of Technology — Present and planned dark matter detection experiments search for WIMP-induced nuclear recoils in poorly known background conditions. In this environment, the maximum gap statistical method provides a way of setting more sensitive cross-section upper limits by incorporating known signal information. We give a recipe for the numerical calculation of maximum gap cumulative distribution functions in one dimension, and extend the method to two dimensions for planned directional dark matter detection experiments that will measure both recoil energy and angle.

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