Scientific Achievement:
Reliability is one of the primary factors dictating the projected PV electricity cost ($/kWh). PV reliability is critical to project developers, to quantify long-term performance and to increase confidence of investors and financial or insurance backers. This work addresses one of the major reliability issues—Potential-Induced Degradation (PID)—of already installed PV modules in the field.¹

Significance and Impact:
PID issues are avoided at the cell or module manufacturing level. However, a large number of PID-susceptible modules have already been installed in the field. This work eliminates or dramatically reduces the PID issue of PV modules already installed and operating in the field.

Research Details:
• A large fraction of commercial PV cells get shunted due to high system voltage leakage current between the grounded module frame and the cells.
• The method developed at ASU uses commercially available, flexible Corning Willow Glass strips placed on the PV module glass superstrates, interrupting the current leakage path.
• Figure 1 shows the current interruption method, and Figure 2 shows the performance retention impact due to current interruption.