

Fig. S1. Images of pits in CR-39 created by exposure to an 241 Am source, $1000 \times$ magnification, obtained as a function of etching time (times indicated). Top row of images were obtained with the focus on the surface of the CR-39. Bottom row of images are an overlay of two images taken at two different focal lengths (surface and the bottom of the pits).



Fig. S2. Images of pits in CR-39 subjected to a Pd/D co-deposition experiment conducted on a Au wire in the presence of an external electric field, $1000 \times$ magnification, obtained as a function of etching time (times indicated). Top row of images were obtained with the focus on the surface of the CR-39. Bottom row of images are an overlay of two images taken at two different focal lengths (surface and the bottom of the pits).



Fig. S3. 45× digital magnification of the triple pit shown in Figure 5d.



Fig. S4. Results of light water and Pd wire experiments done in the presence of an external electric field. (a) Image of CR-39 detector alter Pd/H co-deposition on a Ag wire. Magnification $20\times$, (b) $200\times$ magnification of area indicated in (a). (c) Image of CR-39 detector in contact with a Pd wire after electrolysis in LiCl-D₂O. Magnification $20\times$, (d) $200\times$ magnification of area indicated in (c).



Fig. S5. Results of a Cu electrodeposition experiment. CuCl₂ was plated on a Ag wire, (a) $100 \times$ magnification showing the ridge of the upraised area. (b) $1000 \times$ magnification of area in (a) indicated by an arrow.