

# Water Condensation on a Charged Transmembrane Electric Field Down

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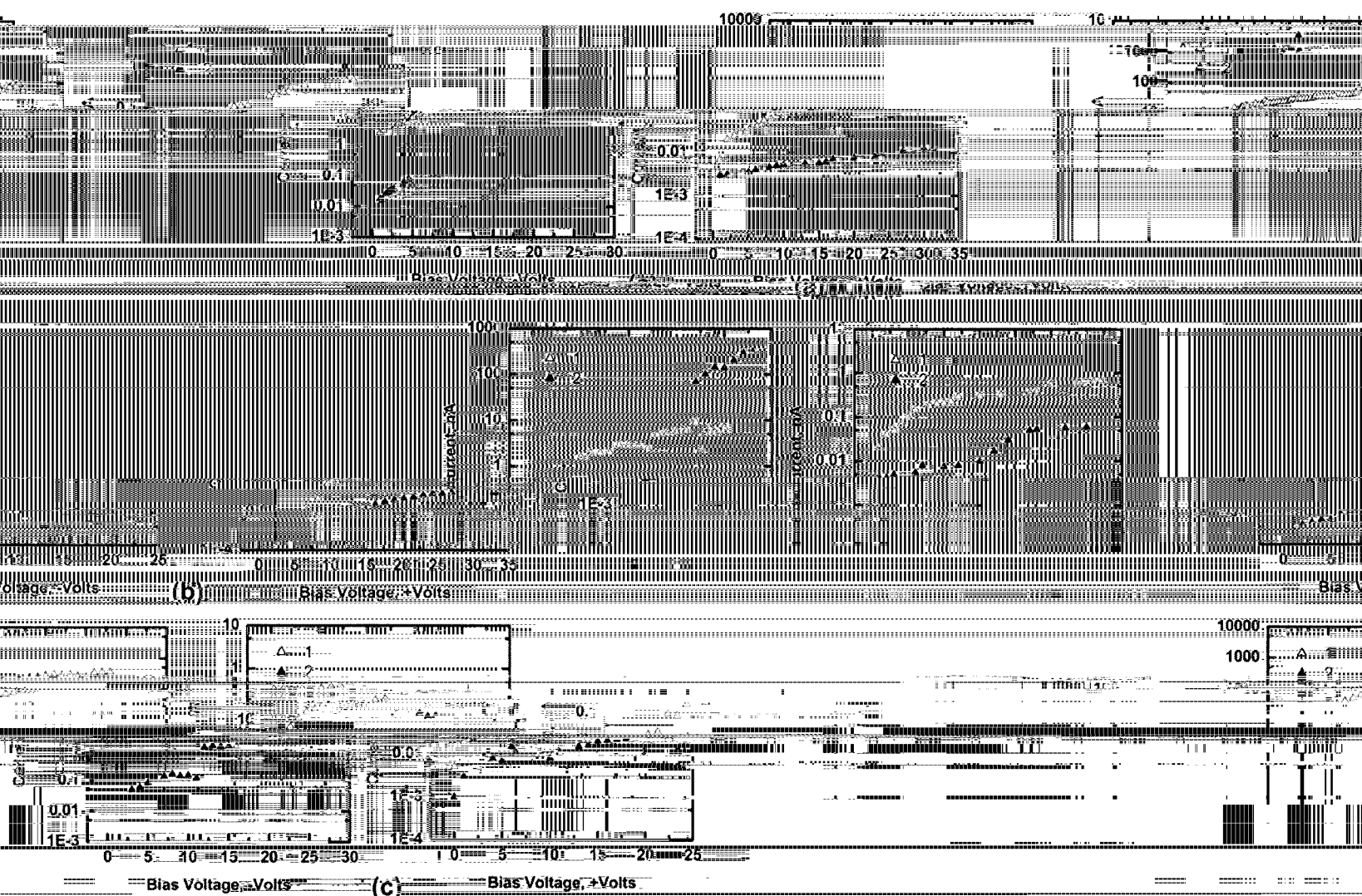


Figure 1. Current versus bias voltage for PMMA film at (a) 10-nm PMMA film at 40% RH, (b) 30-nm PMMA film at 20% RH, (c) 30-nm PMMA film at 40% RH.

Figure 1 shows the current versus bias voltage for PMMA films at different relative humidities. The plots show the current ( $I_{in}$ ) and output ( $I_{out}$ ) current versus bias voltage. The current increases with bias voltage, and the increase is more pronounced at higher relative humidities. The plots are arranged in a grid, with the top row showing current on a logarithmic scale (from 1E-3 to 1000) versus bias voltage on a linear scale (from 0 to 35 V). The middle row shows current on a logarithmic scale (from 1E-3 to 100) versus bias voltage on a linear scale (from 0 to 35 V). The bottom row shows current on a logarithmic scale (from 1E-3 to 10) versus bias voltage on a linear scale (from 0 to 25 V). The plots are labeled (a), (b), and (c) corresponding to different humidity levels and film thicknesses.

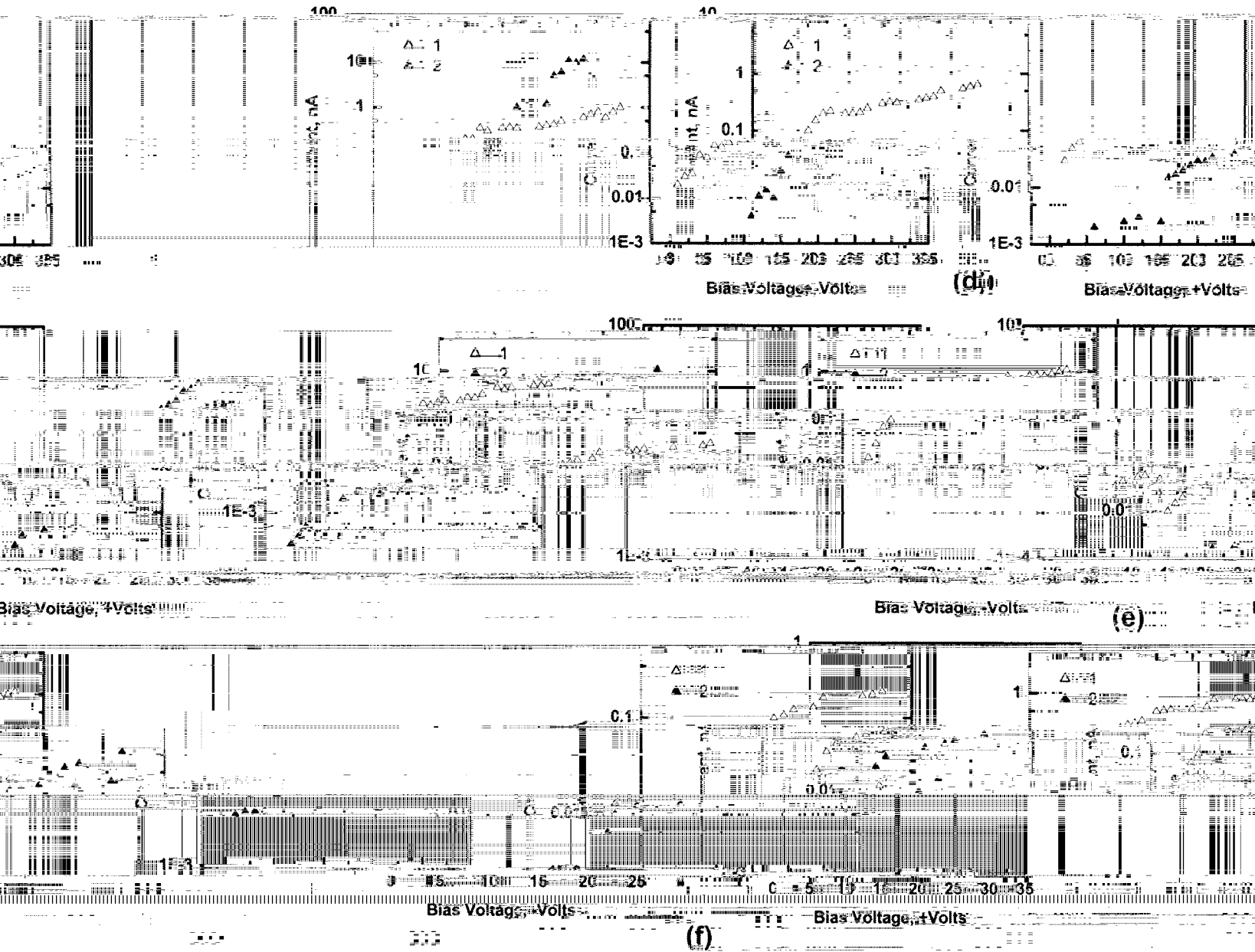


Fig. 3(d), through (f). Input (open triangles), and output (closed triangles) currents versus tip bias voltage for a 30-nm PS film (d)  $H=50\%$ , (e)  $H=50\%$ , (f)  $H=30\%$ .

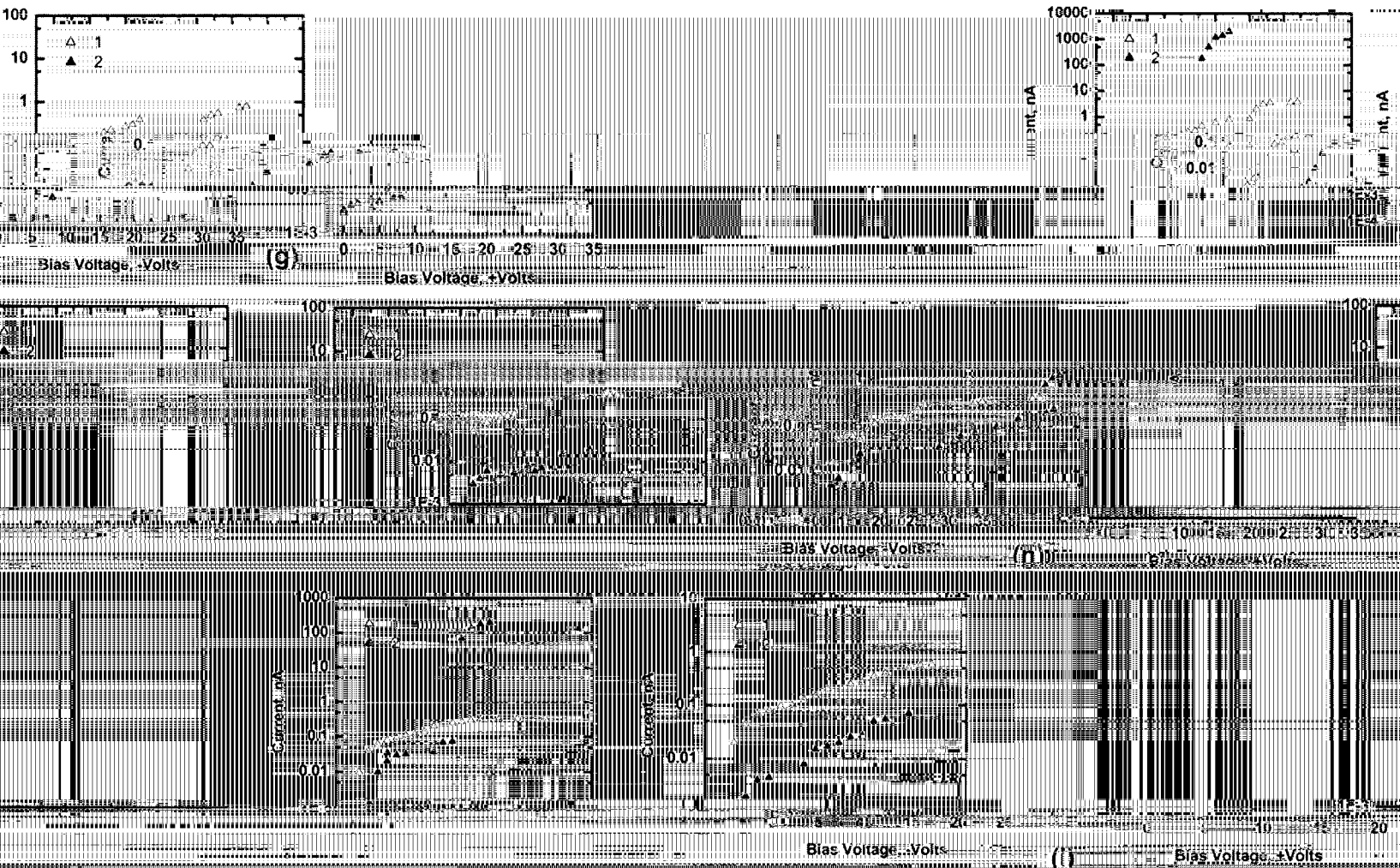


Fig. (3g) through (i): Input (open triangles) and output (closed triangles) currents versus tip bias voltage for a 100 nm CdS film. (g)  $H_{rel} = 48-50\%$ , (h)  $H_{rel} = 20-24\%$ , (i)  $H_{rel} = 10-14\%$ .

