Fig. 4.9. Fractographs of the poled PZT-8 ceramic samples under various combinations of electrical and mechanical loading, (a) under a purely mechanical load of $K_{\sigma,C}^o = 1.25 \text{ MPa}\sqrt{m}$, (b) under combined mechanical and electrical loads of $K_{\sigma,C}^e = 1.21 \text{ MPa}\sqrt{m}$ and $K_{E,C}^e = -92.8 kV/\sqrt{m}$, (c) under combined mechanical and electrical loads of $K_{\sigma,C}^o = 0.43 \text{ MPa}\sqrt{m}$ and $K_{E,C}^e = -135.0 kV/\sqrt{m}$, and (d) under a purely electrical load of $K_{E,C}^o = -170.8 kV/\sqrt{m}$, where the arrow indicates the crack propagation direction and the arrow tip is located at the notch front.
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Fig. 4.11 Dielectric breakdown image
Fig. 5.7 Optical pictures of the fractured samples, (a) front view and (b) fractograph, where mechanical and electrical mean purely mechanical and electrical loading, respectively. The dark area in the fractograph under purely electrical loading indicates that a burned area caused by dielectric discharging.
Fig. 6.11 a, b, c Snapshots of the failure process
Fig. 6.12 Cathode and anode voltages

Fig. 6.13 The FEA meshed object