

Conical etching and electrochemical metal replication of heavy-ion tracks in polymer foils

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Cone-shaped pores as well as cylindrical pores with tapered ends of various geometrical forms were produced via one-side etching of latent ion tracks in thin polymer foils by applying a hydrostatically controlled, neutralizing counter solution on the membrane side opposite to the etchant. The sizes and shapes of the pores depend on the specific composition and the hydrostatic pressure of the counter solution, and the time of etching. Metal replication of such pores provides two-dimensional arrays of sharp whiskers that may serve as electron emitters, being of interest for applications in electronics.