**Formation features of deposits during a cathode treatment of porous silicon in aqueous solutions of erbium salts**

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**Abstract.** The chemical processes that occur during the electrochemical treatment of a porous silicon cathode in aqueous solutions of erbium salts are studied. The results obtained show that (i) erbium ions do not take place in the electrochemical reactions and (ii) erbium-containing deposits are formed by chemical reactions at the cathode. The chemical composition and structure of the deposits can be varied by controlling the electrolysis conditions. These observations facilitate the future design of process cells suitable for the effective incorporation of erbium and other rare earth elements into oxidized porous silicon waveguides for optical amplifier applications.

**Keywords:** Erbium; Porous silicon; electrochemical deposition.

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