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Field-assisted ion-exchange fabrication technique on silica

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A simulation model of field-assisted ion exchange processes for fabricating buried planar waveguide is presented. The simulation is required in order to understand the relationship between the waveguide profiles and the process parameters, such as the process duration, temperature and strength of applied electric field. The simulation results are in good agreement with the experimental results because the simulation takes the concentration-dependent diffusion coefficient into account. The simulation is then used to optimum process conditions for buried planar glass waveguide.