

Sol-gel dielectric films for SOI technologies

V. V. Vaskevich^a, D. L. Kovalenko^a, V. E. Gaishun^a, T. A. Savitskaya^b

^a*F. Skorina Gomel State University, Gomel, Belarus, e-mail: vaskevich@gsu.by*

^b*Belarusian State University, Department of Chemistry, Minsk, Belarus*

SOI-structures are three-layer systems which consist of silicon substrate and a thin layer of silica placed on an insulator (Fig.).

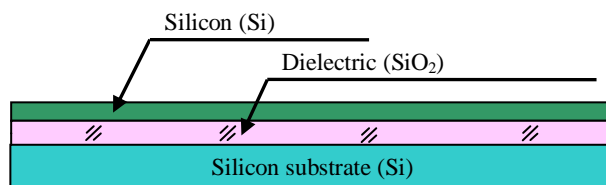


Figure. Scheme of SOI structures

One of the promising methods of producing SOI-structures is sol-gel method. The film-forming solution was prepared based on the silica organic compounds. As a result, the thickness of the dielectric film may be obtained in the range of 0.1 μm to 5.0 μm . The formed films were characterized by high thermal stability (up to 800 $^{\circ}\text{C}$), mechanical abrasion resistance (3000 cycles of abrasion) and stability in a standard etchant for aluminum (at 40 $^{\circ}\text{C}$ for 20 minutes). The films have the dielectric permeability 3.8 and refractive index 1.4.