

# **Catalysed Growth of Doped TGS Single Crystals with Pt(IV) Ions**

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The exploitation of the ferroelectric triglycine sulfate,  $(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SO}_4$  (TGS) in some technical applications [1] has increased the need for high-quality single crystals with stabilized domain structure [2].

A novel type of full faceted single crystals of triglycine sulfate with various contents of Pt(IV) complex-forming ions and L-alanine, D-phenylalanine or L-arginine were grown from aqueous solutions. Morphology, domain structure and  $P$ - $E$  hysteresis loops have been investigated.

On the wafers prepared from  $\langle 110 \rangle$  pyramids we measured the main physical properties, in particular: spontaneous polarization  $P_s$ , coercive field  $E_c$ , internal electrical field  $E_b$ , dielectric permittivity  $\epsilon_r$ , and dielectric losses  $\tan\delta$ .

The effect of the dopant on the growth velocity is explained on the basis of catalytic action of supposed platinum complexes [3]. The value of  $E_b$ , important for technical applications of grown crystals, can be adjusted by Pt(IV)-ions concentration in the growth solution.

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[1] Whatmore R.W., *Rep. Prog. Phys.*, 1986, **49**, 1335. [2] Neumann N., *Ferroelectrics*, 1993, **142**, 83. [3] Novotný J., Březina B., Zelinka J., *Cryst. Res. Technol.*, 2004, **39**, 1089.

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