**Effect of AC poling on electrical properties of PbTiO3 single crystal (Times New Roman 12 pt)**

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Abstract: (within 100 words)

 We demonstrate an alternating current poling (ACP) process to engineer the domain structures of originally rhombohedral (Pb0.95La0.05)[(Mg1/3Nb2/3)0.68-Ti0.32]O3 (PLMN-PT) single crystals (SCs) to simultaneously generate near-perfect transparency, an ultrahigh piezoelectric coefficient d33 (2,480 pC/N), high dielectric permittivity (6800), and an excellent electromechanical coupling factor k33 (about 97 per cent) and a large electro-optical coefficient γ33 (approximately 300 pm/v), which is far beyond the performance of the commonly used transparent ferroelectric crystal LiNbO3. The ACP condition were 0.1 Hz, 24 cycles. The AC poling is a smart, economical, and high-cost performance process to enhance electrical and optical properties for PLMN-PT SCs. (This is an example, 99 words)

**Background, Motivation and Objective**

*Your text explaining what has been done previously and why this work is of importance.*

**Statement of Contribution/Methods**

*Description of equipment, methods used*.

**Results/Discussion**

*Presentation of the results obtained and discussion of the results.*

*Text, Figures, and Table may be completed with a clearly readable image. (Example image)*

**Table 1.** Electrical properties of various relaxor-PT SCs after ACP.

|  |  |  |  |
| --- | --- | --- | --- |
| Sample | $ε\_{33}^{T}/ε\_{0}$ at 25ºC | *tan δ* (%) | *d33* (pC/N) |
| 0.75PMN-0.25PT0.70PMN-0.30PT0.70PMN-0.30PT0.70PMN-0.30PT0.7PMN-0.3PTPMN-PIN-PTPLMN-0.32PT | 6397850066906250757042466800 | --0.32-0.250.81.1 | 1730198018201860193014132490 |

Fig. 1. d33 vs. ACP voltages for PLMN-PT SC.

*Abstract without image: Text must be less than 2500 characters excluding spaces, title, author names, and affiliations. Abstract with an image: Text with an image must be less than 2000 characters excluding spaces, title, author names, and affiliations.*

 **Abstract should be within 1 page using A4 size with 25 mm top & bottom, and 14 mm left & right margins.**