



# Chirality control by electric field in periodically poled MgO-doped lithium niobate

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We study the chirality of periodically poled MgO-doped lithium niobate (MgO:PPLN) by electro-optic (EO) effect. It shows that optical propagation is reciprocal in MgO:PPLN when quasi-phase-matching (QPM) condition is satisfied, which is similar to natural optical active material like quartz. The specific rotation of MgO:PPLN by EO effect is shown to be proportional to the transverse electric field, making large polarization rotation in optical active material with small size possible. We also demonstrate that the chirality of MgO:PPLN can be controlled by external electric field.

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