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【823】 Integrated lithium niobate on insulator high purity spontaneous parametric downconversion source

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Integrated quantum photonics poses some essential requirements a material needs to fulfil to be able to provide a fully integrated platform, among those is the ability of creating and interfering single photons.

Given its second order non-linearity lithium niobate on insulator (LNOI) stands out among the contenders in integrated quantum photonics since it enables spontaneous parametric down-conversion (SPDC) as a process of creating pairs of single photons and allows for fast electro-optical tunability of integrated interferometric networks.

We engineer the dispersion relations inside integrated periodically poled LNOI waveguides, thereby tuning the SPDC phase-matching to create pure photons which can be used as a resource for bosonic quantum experiments.

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