

# **Comparison of Low Temperature Resistance and Comparative Performance of Planar Optical Waveguides**



## **Overview**

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Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung e. V, Fraunhofer IZM, Gustav-Meyer-Allee 25, D-13355 Berlin, Germany. Optical waveguides can be described as transparent structures which are more or less put onto solid carriers. In principle, they function just like fibers and are also described by the same parameters. However, there are also some fundamental differences: Waveguides are not produced ready-made by. A combination of acrylate formulations and SiO<sub>2</sub> nanoparticles is investigated with the aim to improve the optical properties of low-refractive index polymers that are used for the fabrication of planar optical waveguides. A decrease in refractive index and also in the thermo-optic coefficient of. Optical resonator-based frequency stabilization plays a critical role in ultra-low linewidth laser emission and precision sensing, atom clocks, and quantum applications.



## Article Content

Low-Loss Low Thermo-Optic Coefficient Ta<sub>2</sub>O<sub>5</sub> on Crystal Quartz Planar ...

We describe the waveguide structure and key design parameters as well as fabrication considerations for processing tantalum on quartz waveguides.

Low-loss low thermo-optic coefficient Ta<sub>2</sub>O<sub>5</sub> on crystal quartz planar ...

The challenge lies in realizing waveguides that not only deliver low optical loss but also exhibit a low thermo-optic coefficient and frequency noise stability.

Photorefractive Management in Lithium Niobate Waveguides: High ...

To better understand the impact of photorefractive in nonlinear optical applications, we study the impact of photorefractive on the phase-matching spectra of two nonlinear-optical sum ...

Combined thermomechanical and optical simulations of planar-optical ...

In this article, we focus on combining thermal, mechanical and optical simulations of polymer waveguide structures as basic elements for polymer based photonic devices to more ...

### 5. Planar Waveguides

A basic comparison between organic and inorganic material systems is shown in Table 5.2 (), whereby the author concerns himself solely with single-mode waveguides which are intended for use ...

SiO<sub>2</sub> Nanoparticles-Acrylate Formulations for Core and Cladding in ...

A combination of acrylate formulations and SiO<sub>2</sub> nanoparticles is investigated with the aim to improve the optical properties of low-refractive index polymers that are used for the fabrication ...

Optimization and comprehensive comparison of thermo-optic phase ...

While folded waveguides are commonly employed to enhance the performance of these phase shifters, a comprehensive understanding of how varying the number of folds and the ...

Low-Loss Low Thermo-Optic Coefficient Ta<sub>2</sub>O<sub>5</sub> on ...

We describe the waveguide structure and key design parameters as well as fabrication considerations for processing tantalum on quartz waveguides.

Competitive Evaluation of Planar Embedded Glass and Polymer ...

A comparative characterization was carried out on the waveguide classes to show a clear reciprocal dependence of the performance of different waveguide classes on wavelength.

Integrating silicon photonics with complementary metal-oxide ...

We connect these advances to system architectures that are evolving from pluggables to linear-drive pluggables and co-packaged optics, and we discuss the trade-offs among bandwidth ...

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