



Novel glass for low loss high index change optical waveguide photonic circuits

BACKGROUND

There are no existing materials that form an ideal optical material for femtosecond laser inscribed waveguides. Commonly, materials that are designed for other purposes like display glasses or protective cover glasses serve as substrate for laser written waveguide circuits. These materials have limitations in terms of transmission, refractive index contrast as well as a narrow parameter space for the femtosecond laser inscription of waveguide circuits.

OUR SOLUTION

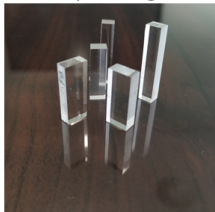
This innovation is a unique solution of glass compositions that provide high refractive index change and low loss laser written waveguides at high throughput.

Optical material that enables high index type 1 waveguides using the femtosecond laser inscription technique.

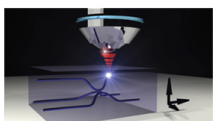
APPLICATIONS

- ✓ Integrated Photonics, waveguides
- ✓ Optical Circuitry for Telecom
- ✓ Optical Sensors
- ✓ Integrated display devices
- ✓ Laser devices, Astrophotonics

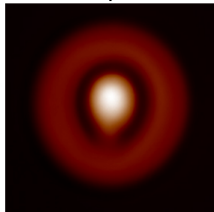
Patent pending Glass



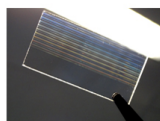
Laser inscription



Index profile



Photonic chip



ADVANTAGES	BENEFITS
Low loss waveguides	Excellent optical transmission
High refractive index contrast waveguides	High density optical circuits
Consistent waveguide structures	High fabrication throughput, reliable integration
Flexible refractive index	Ideal index matching for optical integration
Specs similar to commercial display glasses	Easy integration and sensor design to existing devices

INVENTORS

Toney Teddy Fernandez
 Simon Gross
 Michael Withford

INTELLECTUAL PROPERTY POSITION

Australian provisional patent application filed
 2019904794

PARTNERING OPPORTUNITY

We are seeking an industry partner for further development and commercialisation of this technology through a research collaboration or technology licence.

WOULD YOU LIKE TO KNOW MORE?

Contact Anna Grocholsky
 +61(0) 437 463 317
anna.grocholsky@mq.edu.au