

Protocol : Protocole for fiber machining

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1 Introduction

1.1 Purpose

The goal of the experiment is to find the shape of the etched non linear absorption volume in an optical fiber.

1.2 Material

An optical fiber

1.2.1 Equipment

- Laser beam at $\lambda = 1063 \text{ nm}$
- Any equipment capable of measuring a UV-signal at $\lambda \approx 354 \text{ nm}$ (third-harmonic)

2 Protocol

2.1 Fiber preparation

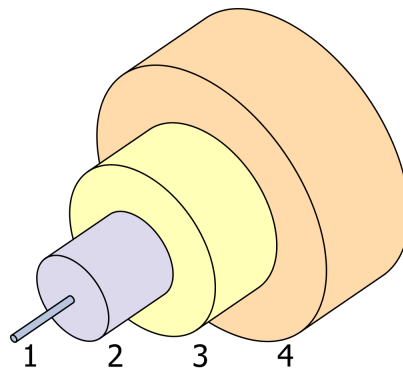


Figure 1: Fiber layout

- ☐ Remove the jacket (4 on figure 1), the buffer (3 on figure 1) to reveal the cladding (2 on figure 1)
- ☐ Clean the remaining of the cladding with isopropanol.

2.2 Laser inscription

- ☐ Find the fiber on the image given by the platform
- ☐ Position the waist of the laser to produce the maximum emission for the third harmonic generation
- ☐ Write a line by translating the waist at a specific depth considering the previous position.

2.3 Sample preparation for the etching process

- ☐ Use a fiber cleaver to expose the laser-affected area