

# AUTOMATIC TAPE DRIVE FOR HIGH-REPETITION LASER-PLASMA ION ACCELERATION

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## Goals

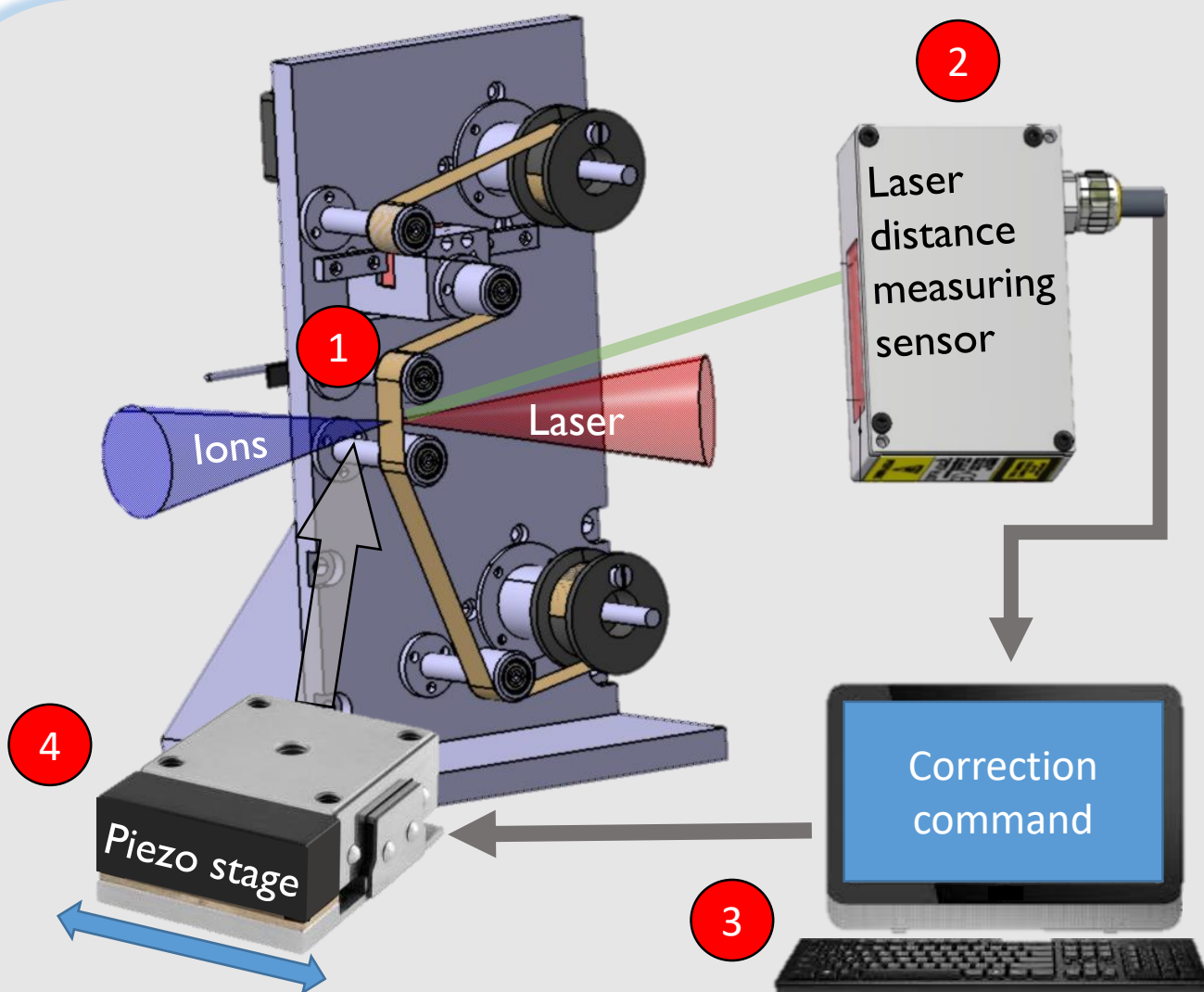
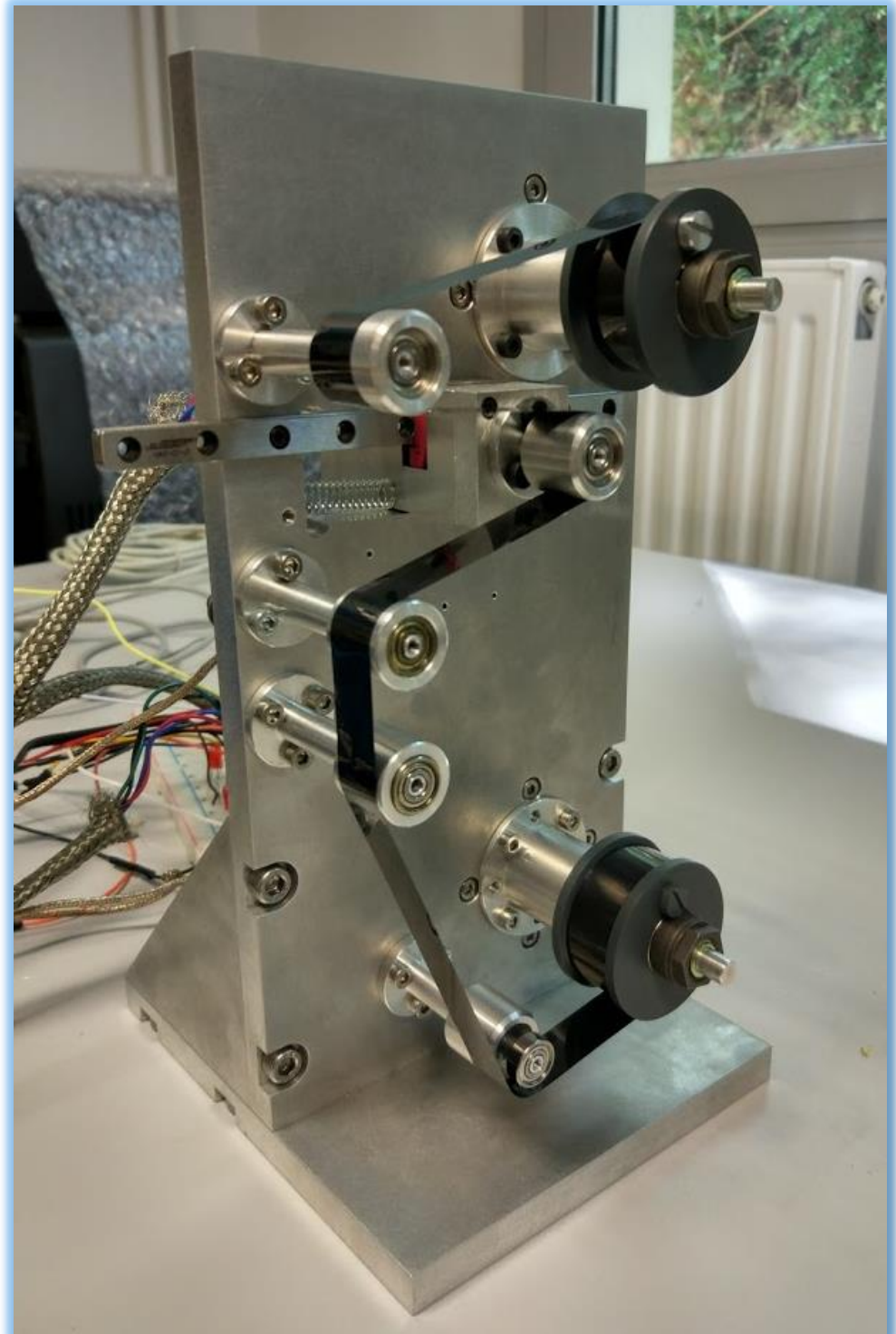
- High repetition rate ion acceleration from thin foils
- Reliable alignment of foil at focal plane
- Improved shot-to-shot stability

## Solution

- Tape drive: foil continuously refreshed
- Precise tension control allowing for ultrathin foils
- Fast automatic realignment of foil at focal plane with laser distance measuring sensor and piezo stage

## Benefits

- High quality data: many shots + small variations
- Maximizing dose rate by using laser to full potential
- Time saving: tape is long, no need to replace often



1. Shot is fired, tape is rolled to new position.
2. Laser distance measuring sensor sends reading to computer.
3. Computer orders piezo stage to move foil back to focal plane.
4. Piezo stage moves accordingly.

