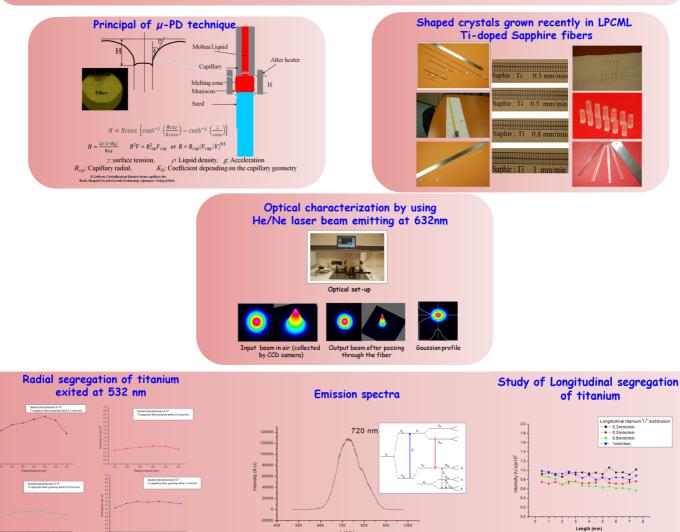
Segregation study of titanium ions in sapphire single crystal Fibers grown by the μ -PD technique.

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In this work we present the growth of undoped and titanium doped sapphire fibers single crystals grown by micro pulling down (µ-PD) technique. The Ti:Sapphire obtained fibers have good morphological and optical quality. The minimization of segregation of titanium is realized through the optimization of the growth conditions (drawing rate, the heating power and the titanium concentration). The obtained fibers have good transparency and stable diameter, they are homogeneous are free from defects. This work confirms the importance of crystalline fibers as good candidates in the design of new photonic devices for laser application.



Conclusion

- 1. We have been able to draw the fibers of about more then one meter length
- 2. We grow fibers under stationary condition (flat interface) with different pulling rate
- 3. Transparent fibers free bubbles and cracks
- 4. We have grown Titanium doped sapphire fibers and surmounted segregation problems
- 5. Le Titanium doped sapphire fibers est un candidats de tout premier ordre pour les lasers femtosecondes.

<u>Outlook</u>

- The increase in the intrinsic quality of the Ti-sapphire fibers.
- The next step will be lasing fibers (polishing and coating, lasing)





