

## Applications relying on laser filamentation in air

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An intense femtosecond laser pulse propagating in air undergoes a filamentation process, during which beam self-focusing due to the optical Kerr effect is counterbalanced by beam defocusing due to plasma generation. As a consequence, the propagating laser pulse maintains a high intensity over very long distances. I will describe some applications exploiting this effect. It includes remote investigation of atmosphere by broadband lidar, triggering and guiding of electric discharges, guiding of lightning, the possibility of improving the speed of trains and of supersonic flights, the fabrication of a furtive plasma antenna.

### Topics

### Contact Email address

**Primary author:** Prof. MYSYROWICZ, André (Laboratoire d'Optique Appliquée)

**Presenter:** Prof. MYSYROWICZ, André (Laboratoire d'Optique Appliquée)

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