



Colorado School of Mines Office for Technology Transfer

Spatially Chirped Pulses for Femtosecond Laser Ablation through Transparent Materials

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Summary: A method for micromachining high aspect ratio features in thick media using temporal focusing of spatially chirped femtosecond laser pulses

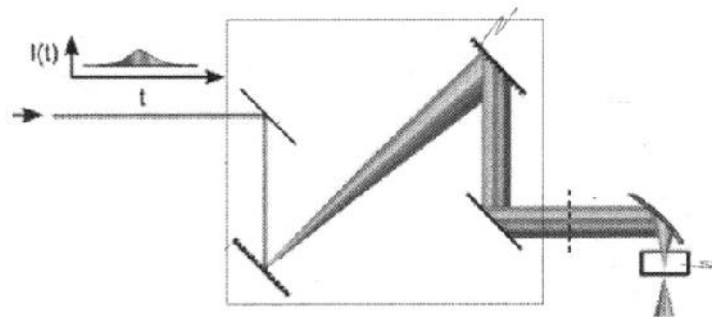
Description: Micromachining with femtosecond laser pulses is a powerful technique to cut chemically inert media. This procedure uniquely facilitates the prototyping of three-dimensional microanalytical devices with sub-diffraction limited features. However, single-step processing has been limited in the size and aspect ratio of the features that can reasonable be produced in these media. This invention discloses a method for cutting high aspect ratio features in thick media using temporal focusing of spatially chirped femtosecond laser pulses that overcomes the size and aspect ratio limitations of current commercial methods. Simultaneous spatial and temporal focusing reduces nonlinear interactions, such as self-focusing, prior to the focal plane so that deep (~1mm) features with parallel sidewalls are ablated at high material removal rates.

Potential Areas of Application

- Micromachining
- Laser Surgery

Main Advantages of this Invention

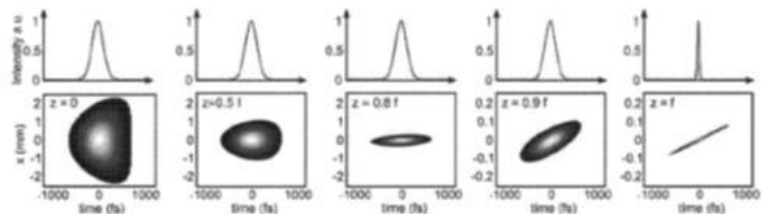
- Can machine thick samples
- Produces high aspect ratio features with parallel walls
- High ablation rates



Intellectual Property Status:

US 8,669,488

ID number: 10011



Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

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