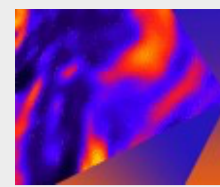


2nd International Conference on Engineering and Science to Achieve the Sustainable Development Goals

Tabriz, Iran • 9–10 July 2023

Editors • Ahmed Ghanim Wadday, Ahmed Razzaq Hasan Al-Manea, Ali Najah Kadhim, Dhafer Manea Hachim AL-Hasnawi, Atheer Kadhim Ibadi, Dhurgham Hassan Abid, Bashar J. Hamza, Mustafa Dakhil Faisal, Hussein Abad Gazi Jaaz, Azher M. Abed, Ali S. Majdi and Tariq J. Al-Musawi





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RESEARCH ARTICLE | MARCH 08 2024

Novel method for controlling the number of laser pulses per length unit

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The separation and overlap between the laser pulses were controlled through sample's scan speed and pulse repetition frequency using a laser system of 0.8 nanosecond pulse width with a repetition frequency of 50 kHz. The laser beam has been focused on the sample surface using an objective lens with 0.75 numerical aperture to a spot with a diameter of 2.83 μm . The laser diode driver has been used for controlling the pulse repetition frequency through controlling the supplied electrical current, whereas the speed of the scanning stage has been used to control the pulses train under computer control. The pulses were successfully controlled from sorting with distance (single pulse per point), contiguous pulses to the overlapping of up to 90%. This control of overlapping between pulses offers an enhanced definition of wires width compared to our previous attempts [1]. This improvement is a further endorsement to Laser direct writing (LDW) as a simple rapid technique that can be used to produce micro/nano scale structures.

Topics

[RADAR](#), [Multiphoton lithography](#), [Fiber optics](#), [Lasers](#)

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