Thermal lens spectroscopy: an analytical model for a pulsed-laser

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Maybe, principal advantages of the pulsed over the continuous laser beam are the tenability and sensitivity. Then, it is an excellent alternative to improve the detection limit of the thermal lens technique. Also, the time response of the pulsed is faster than continuous method [1]. Pulsed thermal lens spectroscopy has been used to characterize organic liquids by using a sample reference [2].

Because of the lack of an analytical model for pulsed thermal lens spectroscopy in mode-mismatched configuration, the analytical model for continuous beam has been used as an alternative to fit the data obtained by using a pulsed beam in experiments [3]. Then, a simple analytical model based on the Fresnel diffraction [4] approximation and considering only the center of the laser is developed, some limits of application are shown too.

References

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