

Abstract: In this work, the finite element analysis of moving coordinates has been used to study the thermal behavior of the tissue subjected to both continuous wave and pulsed CO₂ laser. The results are compared with previously published data, and a good agreement has been found, which verifies the implemented theory. Some conclusions are obtained; As pulse width decreases, or repetition rate increases, or fluence increases then the char depth is decreased which can be explained by an increase in induced energy or its rate, which increases the ablation rate, leading to a decrease in char depth. Thus: An increase in the fluence or decreasing pulse width or increasing repetition rate will increase ablation rate, which will increase the depth of cutting. The selection of a proper laser parameters may be helpful for doctors in obtaining optimum advantages in such treatment.