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Effects of laser defocusing on intermediate species during energy deposition SAGAR POKHAREL, Texas AM University, Graduate Student in Aerospace Engineering — During dual pulse laser energy addition, when plasma is already present in the focal area, the remainder of the laser pulse is partially reflected causing a different spatial distribution of laser intensity profile compared with the Gaussian profile (defocusing). This study reports on the effects of defocusing during laser energy deposition in hydrogen-air mixture. Three temperature plasma model coupled with Navier-Stokes equation and an independent beam propagation solver to quantify intensity of laser during defocusing are used for the two-dimensional numerical simulations. The results show that the effects of defocusing are more pronounced in long lived species like H₂O₂ than the short-lived species like O, OH.

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