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**Effect of match types on the fire propagation speeds in a match stick array** ABIGAIL AMBROSE, NIKLAS MANZ, College of Wooster — We investigated the slope effect on the propagation speed of fire fronts, using 3D-printed match stick array models with angles between $0^\circ$ and $45^\circ$, different conditions for the distance between neighboring match heads, and several match types of the same brand. We discovered different fire font propagation speeds for the planar, horizontal case with $\theta = 0^\circ$ for different match types (same dimensions but different chemical composition of the match head). These correlations also had an effect on the slope-speed relationship when testing the fire propagation in our three models: i) constant distance between the match heads along the horizontal axis ($x$-model), ii) constant distance between the match heads along the vertical axis ($z$-model), and iii) constant distance between the match heads along the slope ($r$-model).

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