

Supporting Information for

Visualization of two-phase reacting flow behavior in a gas-liquid-solid microreactor

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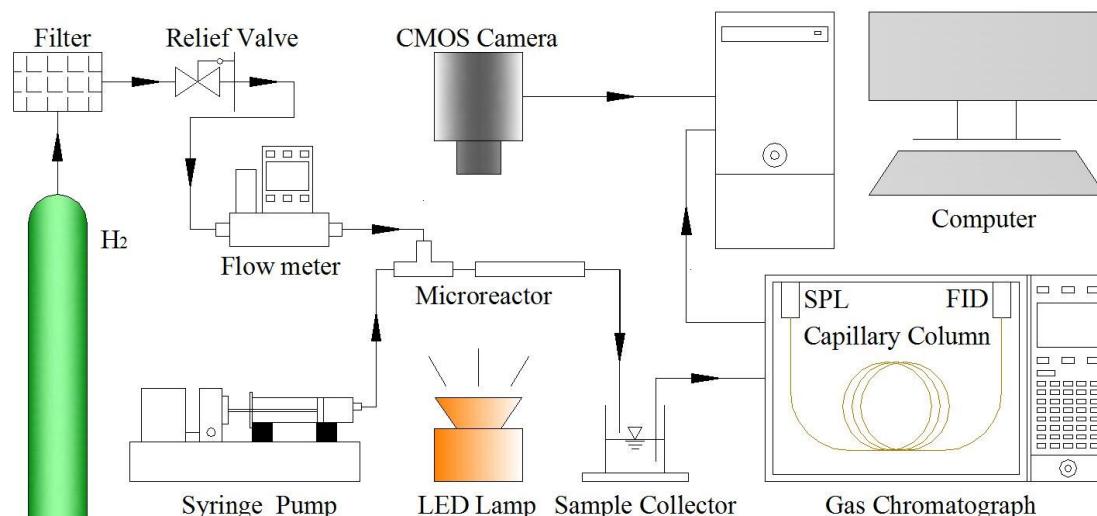


Fig. S1 Schematic diagram of the experimental system.

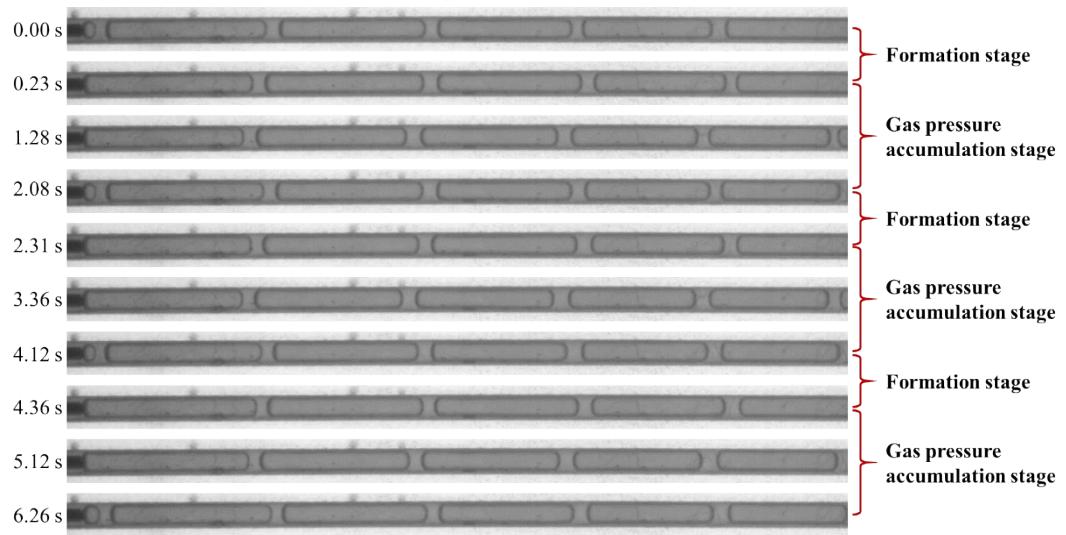


Fig. S2 Gas slug formation and pressure accumulation stages for the alternate gas slug generation.

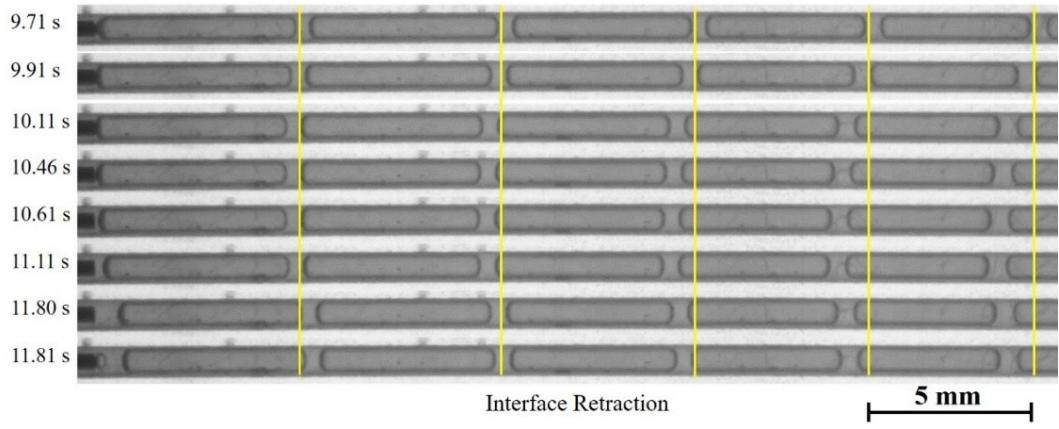


Fig. S3 Real-time images of the interface retraction in the gas pressure accumulation stage with reaction.

($u_g = 0.050 \text{ sccm}$, $u_l = 5 \mu\text{L/min}$, $C_{\text{NB}} = 60 \text{ mM}$)

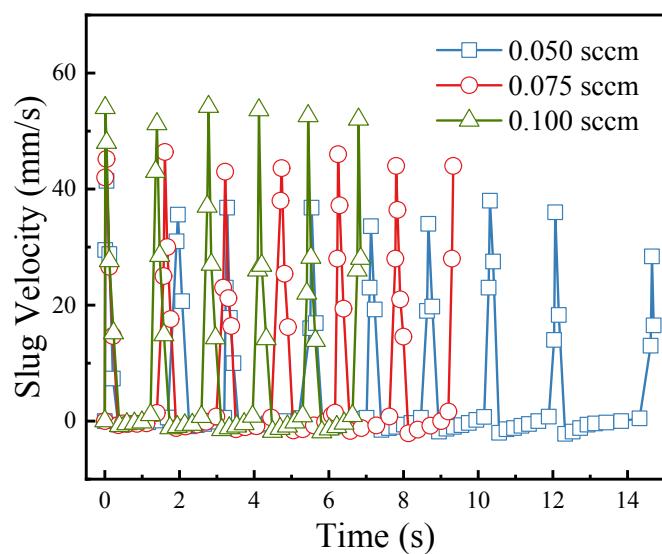


Fig. S4 Gas slug velocity along the main channel at different gas flow rates.

($u_l = 5 \mu\text{L}/\text{min}$, $C_{\text{NB}} = 60 \text{ mM}$)

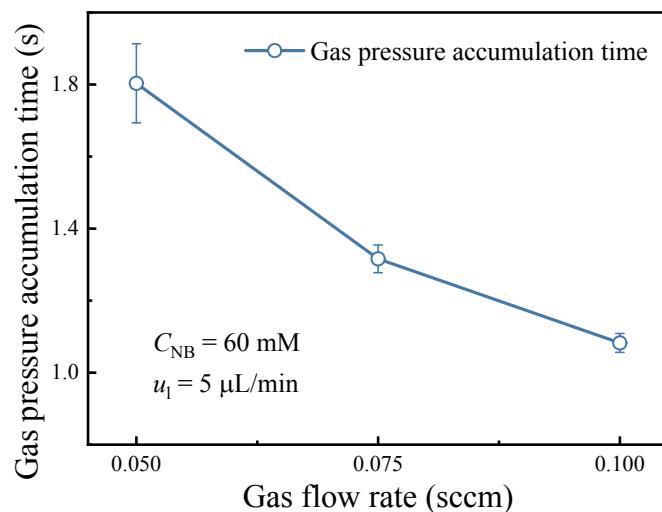


Fig. S5 Gas pressure accumulation time at different gas flow rates.

($u_l = 5 \mu\text{L}/\text{min}$, $C_{\text{NB}} = 60 \text{ mM}$)

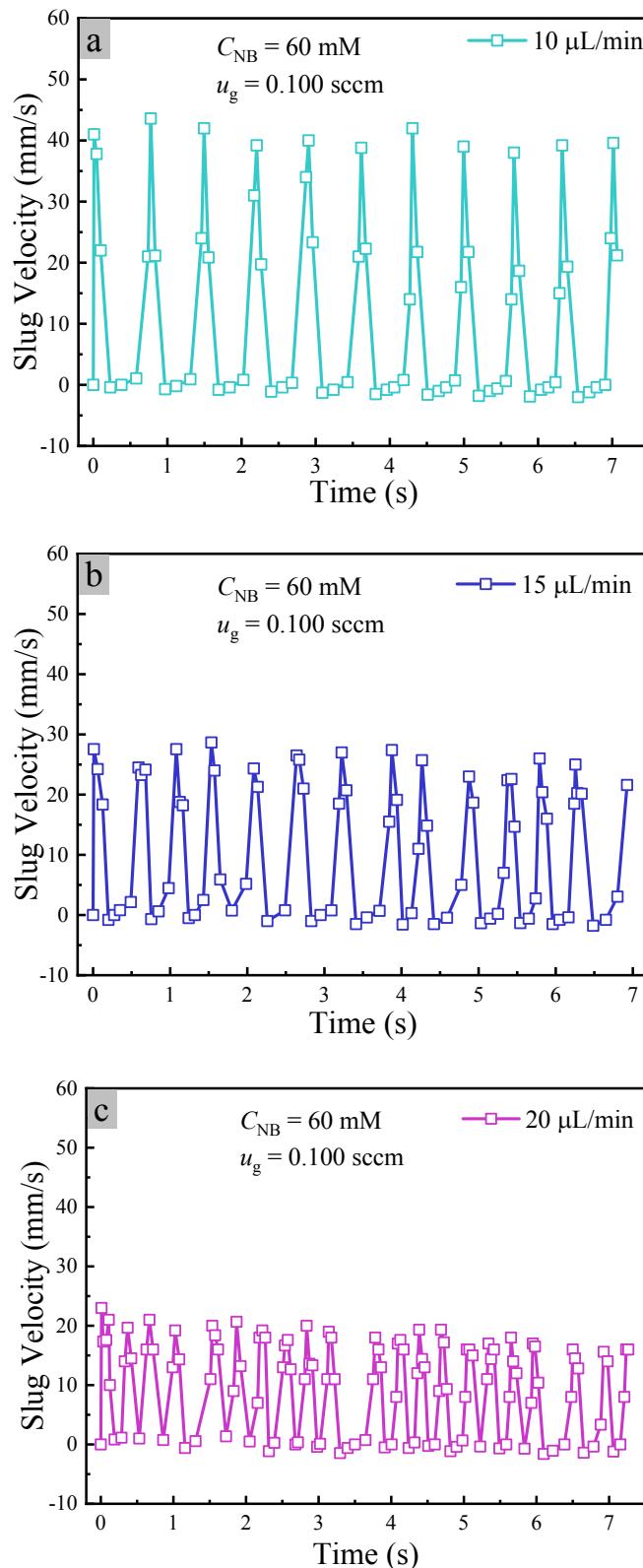


Fig. S6 Gas slug velocity along the microchannel at different liquid flow rates.
 (a: $u_l = 10 \mu\text{L}/\text{min}$, b: $u_l = 15 \mu\text{L}/\text{min}$, c: $u_l = 20 \mu\text{L}/\text{min}$).

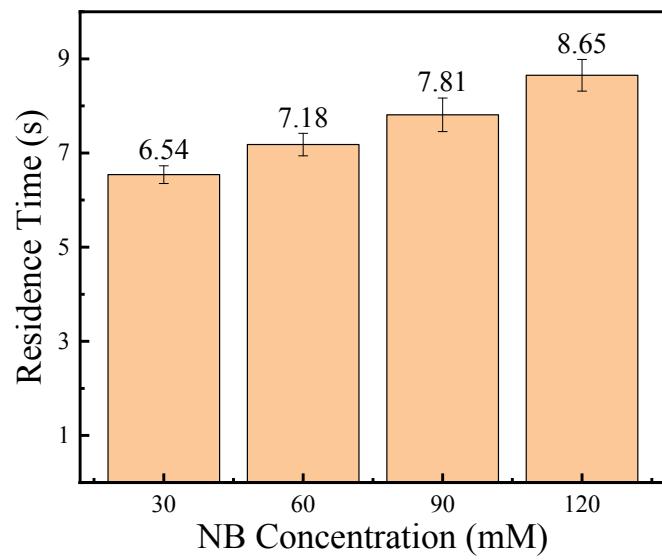


Fig. S7 The effect of inlet nitrobenzene concentration on the residence time in the field of view.
 $(u_l = 10 \mu\text{L}/\text{min}, u_g = 0.100 \text{ sccm})$

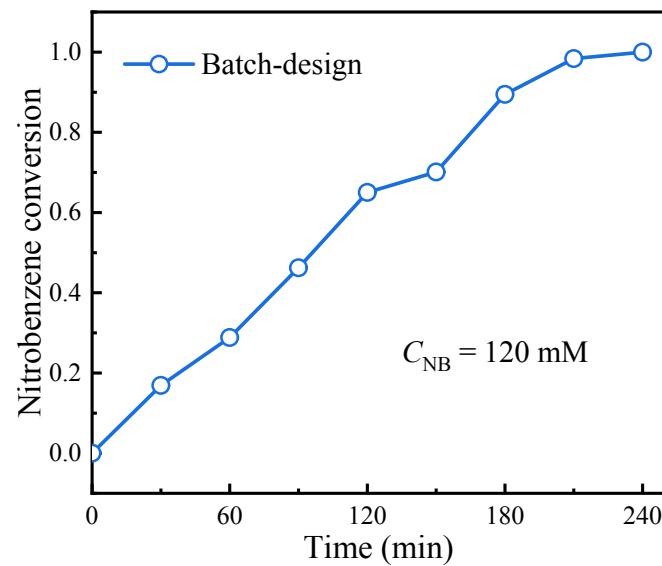


Fig. S8 Variation of the nitrobenzene conversion with the increase of operation time