

Accepted Manuscript

Analytical, numerical and experimental study on capillary flow in a microchannel traversing a backward facing step

Ahmed Taher , Benjamin Jones , Paolo Fiorini , Liesbet Lagae

PII: S0301-9322(18)30197-6
DOI: [10.1016/j.ijmultiphaseflow.2018.06.018](https://doi.org/10.1016/j.ijmultiphaseflow.2018.06.018)
Reference: IJMF 2846



To appear in: *International Journal of Multiphase Flow*

Received date: 26 March 2018
Revised date: 7 June 2018
Accepted date: 20 June 2018

Please cite this article as: Ahmed Taher , Benjamin Jones , Paolo Fiorini , Liesbet Lagae , Analytical, numerical and experimental study on capillary flow in a microchannel traversing a backward facing step, *International Journal of Multiphase Flow* (2018), doi: [10.1016/j.ijmultiphaseflow.2018.06.018](https://doi.org/10.1016/j.ijmultiphaseflow.2018.06.018)

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Highlights

- Capillary flow traversing a backward facing step in a microchannel is modeled analytically.
- Spontaneous flow can be checked by a geometric condition.
- The analytical model and the spontaneous flow condition are in good agreement with experimental and numerical validation.
- The developed model is an enabling tool for designers of capillary microfluidic systems.

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