



Stochastic Greybox Modeling of Slugging Flows

Goranovic, Goran; Møller, Jan Kloppenborg; Jørgensen, Thomas Martini; Madsen, Henrik

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Goranovic, G., Møller, J. K., Jørgensen, T. M., & Madsen, H. (2017). *Stochastic Greybox Modeling of Slugging Flows*. Abstract from Danish Hydrocarbon Research and Technology Centre Technology Conference 2017, Lyngby, Denmark.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Danish Hydrocarbon Research and Technology Centre Technology Conference 2017

Stochastic Greybox Modeling of Slugging Flows

Goran Goranović, Jan Kloppenborg Møller, Thomas Martini Jørgensen, Henrik Madsen

Air/gas is often entrapped in water delivery pipes of petrochemical rigs, blocking the flow and thereby increasing operational energy demands or idle downtimes. Hence, the efficient liquid transport that minimizes the blockage through long pipelines would reduce costs in oil industry. The entrapment belongs to the category of two- (e.g. air/water) or multi-phase (e.g. air/oil/water) flows, the difficult and well-studied topics. The long bubbles on top of thin water layers, known as slugging flow, are particularly relevant in oil recovery.

We present a stochastic grey-box model which combine the physical (mechanistic) knowledge with the (incomplete) measurements of an actual, experimental slugging flow. In particular, stochastic (random) component is introduced to quantify both the missing information and the statistical nature of the complicated flow data.