Numerical simulations of concrete flow: A benchmark comparison - DTU Orbit (03/11/2019)

Numerical simulations of concrete flow: A benchmark comparison

First, we define in this paper two benchmark flows readily usable by anyone calibrating a numerical tool for concrete flow prediction. Such benchmark flows shall allow anyone to check the validity of their computational tools no matter the numerical methods and parameters they choose. Second, we compare numerical predictions of the concrete sample final shape for these two benchmark flows obtained by various research teams around the world using various numerical techniques. Our results show that all numerical techniques compared here give very similar results suggesting that numerical simulations of concrete filling ability when neglecting any potential components segregation have reached a technology readiness level bringing them closer to industrial practice.

General information
Publication status: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering, Universite Paris-Est, Swedish Cement and Concrete Research Institute, Institut für Angewandte Bauforschung Weimar, Technische Universität Dresden, HeidelbergCement Technology Center GmbH, Danish Technological Institute, Federal Institute for Materials Research and Testing, Polytechnic University of Milan
Pages: 265-271
Publication date: 2016
Peer-reviewed: Yes

Publication information
Journal: Cement and Concrete Research
Volume: 79
ISSN (Print): 0008-8846
Ratings:
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.15 SJR 3.462 SNIP 3.187
Web of Science (2016): Impact factor 4.762
Web of Science (2016): Indexed yes
Original language: English
Keywords: Casting, Fresh Concrete (A), Modeling (E), Rheology (A), Workability (A)
Electronic versions:
marac_CEMCON_S_15_00452.pdf. Embargo ended: 28/11/2017
DOIs:
10.1016/j.cemconres.2015.09.022
Source: FindIt
Source ID: 2288042926
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review