14th World Congress on Computational Mechanics (WCCM XIV)
8th European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2020)
July 19- 24, 2020, Paris, France

ADVANCED GRIDDING AND DISCRETIZATION TECHNIQUES FOR PETROLEUM RESERVOIR SIMULATION

TRACK NUMBER (700)

PAULO R. M. LYRA[*], DARLAN K. E. CARVALHO[*], CLÓVIS R. MALISKA[†] AND MICHAEL G. EDWARDS[†]

[*] Universidade Federal de Pernambuco (UFPE), Departamento de Engenharia Mecânica DEMEC)
Av. da Arquitetura, S/N, Cidade Universitária, 50740-550 – Recife – PE – Brazil
prmlyra@padmec.org, dkarlo101@gmail.com

[†] Universidade Federal de Santa Catarina (UFSC), Departamento de Engenharia Mecânica
Campus Universitário – Trindade, 88040-900 – Florianópolis – SC - Brazil
maliska@sinmec.ufsc.br

[†] Zienkiewicz Centre for Computational Engineering (ZCCE), College of Engineering, Swansea
University, Singleton Park, Swansea SA2 8PP, UK
m.g.edwards@swansea.ac.uk

Key words: Petroleum Reservoir Simulation, Flow in Porous Media, Numerical Formulations, Mesh Generation and Adaptation.

ABSTRACT

The mini-symposium is dedicated to the discussion of recent developments and applications in the field of Numerical Simulation of Petroleum Reservoirs and related disciplines, including new gridding, numerical formulations and multiscale methods. The goal is to bring together researchers, students and professionals in the field of Petroleum Reservoir Simulation and related areas. The scope of the mini-symposium ranges from the mathematical and computational methods to the modeling and simulation of challenging applications in petroleum reservoir simulation.

REFERENCES

[1] E. Ahmed, Raheel.; Xie, Yawei.; Michael G. Edwards. (2018). A Cell-Centred CVD-MPFA Finite Volume Method for Two-Phase Fluid Flow Problems with Capillary Heterogeneity and Discontinuity. Transport in Porous Media (2018).

[2] F. E. Marcondes; C. R. Maliska ; Mário C. Zambaldi. A comparative study of implicit and explicit methods using unstructured voronoi meshes in petroleum reservoir simulation. Journal of the Brazilian Society of Mechanical Sciences and Engineering (Impresso), v. 31, p. 353, 2009.

[3] M. R. A. Souza; F. R. L. Contreras; P. R. M. Lyra; D. K. E. Carvalho. A Higher Resolution Flow Oriented Scheme with an Adaptive Correction Strategy for Distorted Meshes Coupled with a Robust MPFA-D Method for the Numerical Simulation of Two-Phase Flows in Heterogeneous and Anisotropic Petroleum Reservoirs (SPE-182677-PA). SPE JOURNAL, v. Prepri, p. 1, 2018.