14th World Congress on Computational Mechanics (WCCM XIV)
8th European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2020)
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APPLICATIONS OF ADVANCED NUMERICAL ANALYSES IN OIL AND GAS INDUSTRY

- TRACK Number 1200 Modeling and Analysis of Real World and Industry Applications
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Key words: finite element analysis, computational fluid dynamics, fluid structure interactions, optimization, failure analysis, metals, polymers, geomechnanics,

ABSTRACT

This mini symposium aims to provide a single platform for numerical analysts, engineers and scientists in oil and gas industry to exchange ideas, showcase best practices on how they use numerical tools such as finite element analysis, computational fluid dynamics to understand fundamental issues in designs, tests and field operation issues, highlight the solutions to challenging real world engineering problems in every segments of oil and gas industry, from upstream, to midstream, to downstream.

We are interested in the following broad topics:
1) Constitutive modeling for metals, polymers, geomechanical materials and their applications;
2) Numerical methodologies to solve complex problems in oil and gas industries - from tools, wellbores to reservoirs;
3) Fluid-structure interactions and other multi-physics simulation;
4) Reliability, uncertainty quantifications and application of statistical FEA/CFD in real world problems;
5) Verification and validation of analysis of complex engineering designs;
6) Engineering simulation driven designs and innovations, and design optimizations;
7) Please contact the mini symposium organizers if you have suggestions for other topics.

Experts and practicing engineers in all disciplines in oil and gas industries are invited to submit their abstracts to this symposium.

Organizers of MS proposals are requested to upload an abstract of approximately 400 words (1 page) no later than **March 31, 2019**, following the format of this template.

The abstract should briefly illustrate the contents and objectives of the Minisymposium. The list of prospective speakers is not required.

For practical reasons, each MS shall have a Corresponding Organizer, who will submit the MS proposal and keep in contact with the Conference Secretariat, and one or more Co-organizers.

Each MS should consist of a minimum of one Session (6 presentations of 20 minutes each). The number of Sessions for a MS will be determined by the number of papers submitted. A MS cannot be split in parallel sessions.

For **Minisymposia of at least two sessions**, the MS Organizers have the possibility to propose a maximum of **two Keynote Lecturers**. Since Sessions are subdivided into 20 minutes slots, the format will consist of 2 consecutive Keynote Lectures of 30 minutes each in the same Session plus 3 invited papers of 20 minutes each.

For any further request, please contact the congress Secretariat:

WCCM-ECCOMAS2020@cimne.upc.edu

REFERENCES

[1] E. Oñate and M. Cervera, "Derivation of thin plate bending elements with one degree of freedom per node", *Engng. Comput*., Vol. **10**, pp. 543–561, (1993).

[2] O.C. Zienkiewicz and R.C. Taylor, *The Finite Element Method*, 4th Edition, Vol. 1, Mcgraw Hill, 1989.