minisymposium title

**Domain Decomposition Methods, High-Performance Technologies and Applications to Petroleum and Water resources**

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ABSTRACT

Many models of computational mechanics, including very important continuous systems of Engineering and Science, are based on the computational processing of large-scale algebraic systems.Large-scale problems with growing computational demands continuously arise in many fields of application, for example oil recovery, subsurface water flow, earthquake simulations, turbulent flows and many others. Fortunately, and in part motivated by these growing demands, computational high-performance technologies have advanced also very much making amenable to effective treatment problems of an ever increasing diversity and complexity. However, when they become available, the application of the new computational resources to each engineering field is not straightforward and an effective interaction between the computational community, and the scholars and professionals of the fields of application is essential to accelerate, or even sustain, progress. This mini-symposium will supply a bridge in which both new computational resources and problems that require them will be presented. In particular, parallel computing is outstanding among the new computational tools, and frequently is the only practical solving means for effectively treating many problems. In the case of systems governed by partial differential equations [1], especially of elliptic or parabolic type, progress depends on the application Domain Decomposition Methods (DDMs) [2]. On the other hand, a computationally-intensive topics of great world-wide interest of such a kind is oil-production, especially Enhanced Oil Recovery (EOR), because sustainable oil-supply depends on it [3]. Something similar can be said of the importance for human kind of water supply sustainability. Therefore, these problems will be highlighted in our Mini-symposium.

REFERENCES

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