MINISYMPOSIUM 3: Domain Decomposition in Coupled Engineering Phenomena with Multiple Scales

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The intent of the minisymposium was to discuss the state of the art and the perspectives in approximation and solution strategies related to Domain Decomposition methods for coupled phenomena in physics and engineering that involve multiple models and/or multiple space and time scales. Six from the presented eight talks were devoted to various aspects of the algorithms for solving multiscale problems. These works reflected the common roots of domain decomposition methods and some of the recent approaches for solving multiscale problems, such as Multiscale Finite Element Method, Multiscale Finite Volume Method, etc. The talks covered a wide spectrum of problems related to domain decomposition algorithms for coupled problems, construction and theoretical analysis of a number of algorithm for multiscale problems, and their applications to engineering and industrial problems. The last two talks were devoted to Discontinuous Galerkin Method, which is considered to be suitable for multiphysics problems because of its potential for coupling different discretizations PDE or system of PDEs, as well as for coupling different types of physical models.

The intensive discussions after the talks and during the breaks contributed to creating a nice working atmosphere and to productive exchange of new ideas.