

## **On one multiscale problem: model of wells for reservoir simulation**

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In this poster, a study of a problem with wells for which nonlocal boundary conditions are given. It is shown that the problem is equivalent to a mixed problem without wells. For this formulation, an error estimate of a mixed finite element method in the 2D case is studied. Also, a numerical study of a diffusion problem in the presence of wells on which integral boundary conditions are used is performed. It is shown that a method proposed earlier is fully efficient and offers certain advantages as compared with direct modeling of wells based on the finite element method. The results of calculations for two wells are presented.