Derivation and well-posedness for Nagdhi poroelastic shell

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Poroelastic structures [1], [2] and their interactions with fluids are part of a wide variety of matters of the greatest interest for contemporary engineering: ship hulls, tanks, hemodynamics, etc. We consider in the present work Biot's coupled equations where the structure is a porous saturated shell of Naghdi type. The unknowns are the displacement, the rotation of the normal to the midsurface as well as the fluid pore pressure. Thanks to the Galerkin method, we prove the existence and uniqueness of a solution for the associate system.

Références

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