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SIMULTANEOUS EXACT CONTROL FOR MAXWELL'S EQUATIONS AND A HYPERBOLIC SYSTEM WITH A PRESSURE TERM

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We consider two different hyperbolic problems: the system of Maxwell's equations and a vector wave equation with a pressure term, which is a simplify model of dynamical elasticity for incompressible materials. Our main result says that we can obtain simultaneous exact boundary control for both models. Simultaneous exact control for different evolution systems was proposed by J.L. Lions and as far as we know such problems were only treated for one system with two different boundary conditions.

We consider the simultaneous boundary observability for problems with zero boundary conditions. The strategy here is to use some modified multipliers for both systems and obtain convenient estimates with geometrical assumptions on the domain to obtain the boundary observability inequality. The simultaneous exact controllability is studied by means of the Hilbert Uniqueness Method, introduced by J. L. Lions.