

CONTROL AND STABILIZATION OF  $2 \times 2$  HYPERBOLIC SYSTEMS ON GRAPHS

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We consider  $2 \times 2$  (first order) hyperbolic systems on networks subject to general transmission conditions and to some dissipative boundary conditions on some external vertices. We find sufficient but natural conditions on these transmission conditions that guarantee the exponential decay of the full system on graphs with dissipative conditions at all except one external vertices. This result is obtained with the help of a perturbation argument and an observability estimate for an associated wave type equation. An exact controllability result is also deduced.