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Dynamics Assignment by PD State Feedback in Linear Reachable Systems

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Abstract: The limits in altering the eigenstructure of linear reachable descriptor systems by proportional-and-derivative (PD) state feedback are studied. Necessary and sufficient conditions are established for a set of invariant polynomials and positive integers to represent the finite and the infinite eigenstructure of a system obtainable from the given descriptor system by PD state feedback. The result implies a constructive procedure to calculate the actual feedback gains.

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AMS Subject Classification: