CONTROLLER SYNTHESIS WITHOUT IDENTIFICATION

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In this paper we demonstrate how fixed order or structure controllers for LTI systems can be synthesized and designed from knowledge of only the frequency response of the system and the number of RHP poles or zeros. In particular the complete set of stabilizing controllers as well as those attaining various classical (gain, phase margin) and modern (worst case optimization) specifications can be exactly determined. This raises various issues related to robustness with respect to models as well as robustness with respect to experimental data.