

Towards structured H_∞ synthesis for flexible launcher

This paper deals with one of the first step of the industrial process of the application of structured H_∞ synthesis for launcher control during atmospheric flight phase. In this study, a benchmark representative of launcher control during steady state ascent phase was defined and the feasibility of structured H_∞ control design was demonstrated in this framework. Thanks to an incremental approach performance improvements of structured H_∞ controller were also highlighted with respect to baseline H_∞ controller. Improvement axes that still necessitate further researches before envisaging real application of structured H_∞ framework for launcher control were identified; these perspectives are currently under investigation in the frame of cofounded researches in collaboration with CNES and ONERA.