

# robustify

**robustify** Derives robust counterpart.

`[Frobust,objrobust,failure] = robustify(F,h,options)` is used to derive the robust counterpart of an uncertain YALMIP model.

$$\begin{array}{ll} \min & h(x,w) \\ \text{subject to} & \\ & F(x,w) \succeq 0 \quad \text{for all } w \text{ in } W \end{array}$$

The constraints and objective have to satisfy a number of conditions for the robustification to be possible. Please refer to the YALMIP Wiki for the current assumptions.

Some options for the robustification strategies can be altered via the solver tag 'robust' in `sdpssettings`

- 'robust.lplp' : Controls how linear constraints with affine parameterization in an uncertainty with polytopic description is handled. Can be either 'duality' or 'enumeration'
- 'robust.auxred': Controls how uncertainty dependent auxiliary variables are handled  
Can be either 'projection' or 'enumeration' (exact), or 'none' or 'affine' (conservative)
- 'robust.reducedual' Controls if the system equality constraints derived when using the duality filter should be eliminated, thus reducing the number of variables, possibly destroying sparsity .
- 'robust.polya' : Controls the relaxation order of polynomials. If set to NAN, the polynomials will be eliminated by forcing the coefficients to zero

## See also

[uncertain](#)

## Overloaded methods:

[optproblem/robustify](#)