dered. The stochastic measures used are the Prohorov and the rho-bar distances. The sufficient conditions derived for the existence of saddle-point solution dictate nonlinear filter operations.

GENERAL RESULTS ON MINIMAX ROBUST FILTERING, S. Verdu and H.V. Poor (Department of Electrical Engineering and the Coordinated Science Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA). In any minimax robust filtering situation two results are sought ; namely, the reduction of the problem to a search for least favorable operating points by proving that the optimal filter for the least favorable is minimax robust, and the actual formulation of the conditions for least favorability. The theorems that we present in this paper solve these questions for general filtering situations in a wide variety of instances. The first theorem requires a regularity condition on the performance function and its convexity in the set of operating points, while the second result finds its application in the frequent case in which there exist several independent uncertainties. The application of the results is illustrated for several filtering problems in signal detection and estimation. (This work was supported by the U.S. Army Research Office under Contract DAAG-81-K-0062, by the Joint Services Electronics Program (U.S. Army, U.S. Navy, U.S. Air Force) under Contract N00014-79-C-0424, and by the U.S. Office of Naval Research under Contract N00014-81-K-0014).

ON ROBUST LINEAR CAUSAL ESTIMATION OF CONTINUOUS-TIME SIGNALS, K.S. Vastola (Department of Electrical Engineering and Computer Science, Princeton University, Princeton, NJ 08544, USA). The problem of linear causal estimation of a stationary continuous-time signal is considered under the generally more realistic assumption that we do not have exact knowledge of the power spectral densities (PSD's) of the signal and noise. A method is given for designing (minimax) robust estimators (i.e. estimators which minimize the worst-case mean-square error over some classes of PSD's chosen to model our uncertainty about the true signal and noise PSD's). In particular, this method yields robust predictors, robust causal filters and robust finite-lag smoothers. Also, numerical examples are given which illustrate the effectiveness of this design.