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This document is the fifth and sixth quarterly progress reports for the period indicated. The research focus during this time has been on computational issues associated with the new L/H control synthesis theory and on examples illustrating application of the theory.

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ROBUST CONTROL OF MULTIVARIABLE  
AND  
LARGE SCALE SYSTEMS

for

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH  
Bldg. 410  
Bolling Air Force Base, DC 20221

Contract No. F49620-82-C-0090

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ROBUST CONTROL OF MULTIVARIABLE  
AND  
LARGE SCALE SYSTEMS

This document is the fifth and sixth quarterly progress reports for Contract No. F49620-82-C-0090. It covers the period from 1 November 1983 to 1 February 1984 and the period 1 February 1984 to 1 May 1984.

SUMMARY OF ACCOMPLISHMENTS

The research focus during this time has been on computational issues associated with the new  $L_\infty/H_\infty$  control synthesis theory and on examples illustrating application of the theory. A new scheme for parameterization of optimal controllers has eliminated the numerical problems which had plagued our first attempts to implement the theory.

Preliminary application of the new  $L_\infty/H_\infty$  synthesis theory to sample control design problems has been very encouraging. The most useful feature is the handling of both performance and robustness in a natural way. The most critical practical issue to be faced is the translation of various design requirements into a single robust performance specification. This translation must be understood better before the  $L_\infty/H_\infty$  methods can be made widely accessible.

PLANS FOR NEXT QUARTER

The main effort for the next quarter will be devoted to working examples to illustrate the theory and writing up results.

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