Preliminary program for

MATHEMATICAL CONTROL AND SYSTEMS THEORY

at Institut Mittag-Leffler, spring 2003

The program has been reduced somewhat to fit in the half-year format. We concentrate on five subareas that will appear consecutively in the following order but with some overlap:

- 1. Distributed systems (control systems modeled by partial differential equations)
- 2. Operator theory and linear systems
- 3. Systems and signals
- 4. Robust control systems
- 5. Nonlinear control theory

In particular, there is a nonempty intersection between topics #1 and #2, topics #2, #3 and #4, and topics #4 and #5. Topic #1 has been placed first to be adjacent to the fall 2002 program.

Except for the organizers themselves (C.I.Byrnes, A. Lindquist, C.F. Martin and Anders Rantzer), who will be staying off-campus, the following people will stay the full semester:

- Hector Sussmann, Rutgers
- V. Jurdjevic, Toronto
- Arthur Krener, Univ. California Davis

A few others would also like to stay for the semester, but at this time we do not want to risk oversubscribing.

At this time we have the following preliminary list of participants, most of which want to stay a month. Some of them are still a bit uncertain, depending on leaves of absence, etc. We also have a reserve list to use on a need-be basis. Participants are ordered according to the topics mentioned above. <u>Some are mentioned under more than one topic</u>.

1. Distributed systems

H. T. Banks, North Carolina
John Burns, Virginia Polytechnic Institute
Christopher I. Byrnes, Washington University, St.Louis
Ruth Curtain, Groningen
Franz Kappel, Gratz
Irena Lasieka, University of Virginia
Jacques-Louis Lions, College de France (waiting for reply)
Pierre-Louis Lions, Paris-Dauphine
M. Shubov, Texas Tech
V. Shubov, Texas Tech
Roberto Triggiani, University of Virginia
George Wiess, Imperial College

2. Operator theory and linear systems

D. Z. Arov, Odessa, Ukraine Laurent Baratchart, Nice

Ruth Curtain, Groningen Harry Dym, Weitzmann Institute Ciprian Foias, Indiana Paul Fuhrmann, Ben Gurion University Beer Sheva Israel Gohberg, Tel Aviv J. W. Helton, Univ California San Diego (uncertain) M. A. Kaashoek, Free University, Amsterdam Anders Lindquist, KTH C.F. Martin, Texas Tech A.S. Matveev, St. Petersburg Tryphon Georgiou, Univ. Minnesota Gy. Michaletsky, Budapest Giorgio Picci, Padova Olof Staffans, Åbo akademi Allen Tannenbaum, Georgia Tech Jan Willems, Groningen

3. Systems and signals

W. P. Dayawansa, Texas Tech
Jan-Olof Eklundh, KTH
K. Ghosh, Washington University, St Louis
Tryphon Georgiou, Univ. Minnesota
Ulf Grenander, Brown
Uwe Hemke, Regensburg
Anders Lindquist, KTH
James L. Massey, Copenhagen, Denmark
David Mumford, Brown
Giorgio Picci, Padova
Joachim Rosenthal, Notre Dame
Gunnar Sparr, Lund
Allen Tannenbaum, Georgia Tech
Jan Willems, Groningen

4. Robust systems

Vincent Blondel, University of Liege, Belgium John Doyle, Caltech Keith Glover, Cambridge University Tryphon Georgiou, Univ. Minnesota H. Kimura, Tokyo Anders Lindquist, KTH Alexander Megretsky, MIT Pertti Mäkilä, Tammefors Anders Rantzer, Lund Joachim Rosenthal, Notre Dame Malcolm Smith, Cambridge Jacob Stoustrup, Aalborg, Denmark Allen Tannenbaum, Georgia Tech Sergei Treil, East Lansing, Michigan Vladimir Yakubovich, St. Petersburg Y. Yamamoto, Kyoto

5. Nonlinear control theory

Jean-Pierre Aubin, Paris-Dauphine A. Agrachev, Trieste (and Steklov Institute) A. Bloch, Michigan Christopher I. Byrnes, Washington University, St.Louis Roger Brockett, Harvard Jean-Michel Coron, Paris-Sud Fritz Colonius, Augsburg Michel Fliess, CNRS-Gif-sur-Yvette Hélène Frankowska, Paris-Dauphine Xiaoming Hu, KTH Alberto Isidori, Rome Naomi Leonard, Princeton J. E. Marsden, Caltech C.F. Martin, Texas Tech Laurent Praly, CNRS, Paris Anders Rantzer, Lund

In addition, we have the following people in optimization, which may attend in either of topics #3, #4 or #5: B. T. Poljak, Moskva R. T. Rockafellar, University of Washington Roger Wets, University of California, Davis

There will not a be large attendance of senior people from Nordic countries, but there are several younger people that can attend under the postdoctoral program. The idea is to get younger people here to become interested in these topics. We also have a list of mathematicians from Nordic countries that are not in Mathematical control and systems theory *per se*, but who have interacted with the field and worked on problems posed by the field. Some of these should be invited if vacancies appear. Such interaction could be very fruitful.