

1992 American Control Conference

JUNE 24 - 26, 1992

In cooperation with IFAC

The Westin Hotel
Chicago, Illinois

The American Automatic Control Council will hold the eleventh American Control Conference (ACC) Wednesday through Friday, June 24-26, 1992 at The Westin Hotel in Chicago, Illinois. This conference will bring together people working in the fields of control, automation, and related areas from the American Institute of Aeronautics and Astronautics (AIAA), American Institute of Chemical Engineers (AIChE), American Society of Mechanical Engineers (ASME), Association of Iron and Steel Engineers (AISE), Institute of Electrical and Electronics Engineers (IEEE), Instrument Society of America (ISA) and the Society for Computer Simulation (SCS).

Both contributed and invited papers will be included in the program. The ACC will cover a range of topics relevant to theory and practical implementation of control and automation. Topics of interest include but are not limited to linear and nonlinear systems, identification and estimation, signal processing, multivariable systems and control, large scale systems, robotics and manufacturing systems, guidance and control, sensors, simulation, modeling, adaptive control, optimal control, robust control, expert systems, control education and control applications.

Schedule Summary

August 15, 1991: Deadline for contacting Vice Chair for Invited Sessions regarding proposed invited sessions.

Sept. 15, 1991: Deadline for submission of contributed papers and invited session proposals.

Jan. 21, 1992: Authors notified and authors' kits distributed.

March 1, 1992: Deadline for typed mats for Proceedings.

Call for Contributed Papers

The 1992 ACC Program Committee is soliciting two types of contributed papers in all areas of control and automation: (i) regular papers which describe the work in some detail, and (ii) short papers which present recent research results. All papers accepted for presentation must appear in the Conference Proceedings. Prospective authors should submit six (6) copies of the complete manuscript (marked "1992 ACC") by September 15, 1991. Regular papers should be submitted to a Society Review Chair. Short papers should be submitted to the Vice Chair for Contributed Sessions. Short papers should consist of a 700-word (2-3 page) summary. The author's society affiliation, if any, should be indicated on the short paper abstracts.

Call for Invited Sessions

The Program Committee is also soliciting proposals for invited sessions for the conference. Prospective organizers should contact the Vice Chair for Invited Sessions prior to August 15, 1991 for the appropriate forms. The completed forms must be returned to him by September 15, 1991.

Author Notification

The final selection of contributed and invited sessions will be announced by January 21, 1992, at which time the authors' kits will be mailed to the corresponding authors with the mats on which papers are to be typed. For inclusion in the Proceedings, the deadline for typed mats is March 1, 1992. Authors will be requested to limit their manuscripts to six proceedings pages. Short papers are limited to two proceedings pages. There is an extra page charge for papers exceeding the limits above.

ACC Workshops

The Organizing Committee intends to arrange workshops to be held in conjunction with the 1992 ACC. Suggestions are solicited for appropriate subjects. Potential organizers should contact the Workshop Chairman or the General Chairman.

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June 24 - 26, 1992

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Under the auspices of the American Automatic Control Council.

U.S. National Member Organization of the INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL.

MEMBER SOCIETIES: American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers, American Society of Mechanical Engineers, Association of Iron and Steel Engineers, Institute of Electrical and Electronics Engineers, Instrument Society of America, Society for Computer Simulation.

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Identification of a Distributed Parameter (Conductivity) in a System Governed by a Parabolic Equation: Uniqueness and Stability Results

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Abstract

The parameter identification problem considered herewith consists of identifying the measurable, bounded and strictly positive position - dependent conductivity from interior potential measurements in one spatial dimension. At least one solution is assumed to exist. Since conductivity satisfies a first order ordinary differential equation (ODE), *uniqueness* follows from stating either a regular or a singular initial value problem. Regular problems arise when a Cauchy datum is available at a point where the coefficient of a' does not vanish. Singular problems are met when the potential is stationary, according to the conditions originally given by Kitamura and Nakagiri [*SIAM J. Control and Optimiz.*, **15**, (1977), pp 785 - 802] or when the { *potential; source term* } pair satisfies a non - local property known as *self-identifiability*. Potentials shall be piecewise differentiable in all cases. When *stability* is examined, potentials are chosen in a subset of $W_2^{2,1}$; the starting point is an ODE for the conductivity difference, the *defect equation*. Two distinct integration procedures are applied to the latter, according to whether uniqueness is due to a regular or a singular problem. Standard stability theory applies to the former and leads to L^∞ - estimates, provided Gronwall - Bellman' s inequality is extended to measurable functions. Singular problems yield at most L^1 - stability estimates. Some examples and counterexamples are provided. The results help in interpreting the performance of some known distributed parameter identification methods.