ICIAM 91, July 8–12, 1991

Side 1

For Contributors to Contributed Paper Sessions and Minisymposia

Contributed Presentations—Poster Form

The ICIAM 91 Program Committee is encouraging contributors to present their papers in poster form to increase communications among participants, foster the development of international friendships, and reduce the need for large numbers of parallel sessions.

Poster presentations foster the exchange of ideas between the contributor and those who have a specific interest in the contributor's work. They enable the contributor to proceed at a pace consistent with the interests of the group gathered around him/her.

Contributors selected for a session will be located together in one room according to subject matter.

Poster presentations should be based on displayed materials. A consise statement of the problem and the results should be a conspicuous part of the display. The display should be designed to take advantage of the fact that the presentation need not be "linearly ordered" as in a talk or written paper. For example, arrows directing the viewer to various parts of the display and color coding of different aspects of the work may be used to advantage.

Each contributor will have a space approximately eight feet square and should be available for a two or three hour session. Contributors should use visual aids such as 8½" x 11" sheets for mounting on a poster board approximately 4' x 6'.

Contributed Presentations—Lecture Form

Contributed papers are 15 minutes long with five additional minutes for questions and answers. To the extent possible, contributed papers will be organized into sessions according to subject matter. Each speaker has an obligation to make himself/herself known to the chairperson at the beginning of the session.

Minisymposium Presentations

Speakers in minisymposium sessions also should complete this form. Presentations normally are 25-30 minutes each, but this must be confirmed by your minisymposium organizer.

For Users of Overhead and 35mm Projectors

Please prepare vugraphs and slide transparencies carefully. The contents should be confined to the principal points of the presentation, using 8–12 lines per transparency. Use clear, large handwriting or large typeset letters to ensure clarity. Avoid the use of many equations—a full screen of equations can lose the audience.

PLEASE ANSWER THE FOLLOWING

1. Type of Presentation (check one):
Contributed : Lecture Form X
Poster Form 2130 acceptable
Minisymposium: _____

2. Equipment for Visual Support
Lecture Form/Minisyposium:
Overhead Projector X
2" x 2" Slide Projector (35mm) _____
Poster Form:
Easel _____ Poster Board _____
Other (specify) _____

More sophisticated equipment can be provided, but you may be required to pay the rental fee. For details, indicate your requirements below:

_____

3. If you are a speaker in a minisymposium, who is the organizer? _____

_____

4. What is the minisymposium title?

_____

_____

5. If more than one author, who will present the paper? _____

6. Is the presentation about an industrial problem?
Yes X No _____

7. Subject Classification
To help us schedule your presentation, please complete Subject Classification below.

8. Society Memberships
GAMM _____ IMA _____ SIAM _____ SIMAI _____
SMAI _____ OTHER _____

SIAM SUBJECT CLASSIFICATION

(Check at least one subject, but no more than one in each group, to best describe your presentation.)

GROUP 1

- ❑ Linear algebra and matrix theory. (01)
- ❑ Real and complex analysis including approximation theory, integral transforms (including Fourier series and wavelets), integral equations, asymptotic methods, and special functions. (02)
- ❑ Functional analysis and operator equations, and integral and functional equations. (26)
- ❑ Ordinary differential equations including dynamical systems. (03)
- ☒ Partial differential equations including inverse problems. (04)
- ❑ Discrete mathematics and graph theory, including combinatorics, combinatorial optimization, and networks. (05)
- ❑ Numerical analysis (theory). (06)
- ❑ Computer science including computer architecture, computer hardware, computational complexity, applied logic, database, symbolic computation. (08)
- ❑ Applied probability including stochastic processes, queueing theory, and signal processing. (09)
- ❑ Statistics including data analysis and time series analysis. (10)
- ❑ Optimization theory and mathematical programming including discrete and numerical optimization, and linear and nonlinear programming. (12)

GROUP 2

- ❑ Control and systems theory including optimal control. (11)
- ❑ Management sciences including operations research. (27)
- ❑ Communication theory including information theory and coding theory. (13)
- ❑ Applied geometry including computer-aided design and related robotics. (14)
- ❑ Image processing including computer graphics, computer vision, related robotics, and tomography. (15)
- ❑ Classical mechanics of solids including elasticity, structures and vibrations, constitutive models. (16)
- ❑ Fluid mechanics including turbulence, aeronautics, multiphase flow. (17)
- ❑ Atmospheric and oceanographic sciences. (20)
- ❑ Quantum physics, statistical mechanics, and relativity. (18)
- ☒ Geophysical sciences including reservoir modeling, seismic exploration, and petroleum engineering. (19)
- ❑ Chemical kinetics, combustion theory, thermodynamics, and heat transfer. (21)
- ❑ Astronomy, planetary sciences, and optics. (29)
- ❑ Materials science, polymer physics, structure of matter. (31)
- ❑ Electomagnetic theory, semiconductors, and circuit analysis. (32)
- ❑ Biological sciences including biophysics, biomedical engineering and biomathematics. (22)
- ❑ Environmental sciences. (23)
- ❑ Economics. (24)
- ❑ Social sciences. (25)

GROUP 3

- ❑ Computational mathematics including scientific computing, parallel computing, and algorithm development.(07)
- ❑ Simulation and Modeling. (30)
- ❑ Applied mathematics education (K-12, undergraduate curriculum, graduate study and modeling courses). (28)
- ❑ Other

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Side 2

Preparation of Abstracts

1. Begin typing the abstract title, text, and author information directly below the heading captions.

2. Abstract should not exceed 100 words. Please:

   • Explain what problem area you will address and why it is important (2-3 sentences).

   • Indicate current methods used to solve the problem(s), their shortcomings and possible improvements (2-3 sentences).

   • Describe the scope of your presentation.

   References, if necessary, should be in the body of the abstract. Formulas should be kept to a minimum—please, no vertical fractions, multiple subscripts, or handwritten symbols. Abstracts submitted on this form will be printed as received. Errors in the text are the author's responsibility.

3. For two or more authors with the same affiliation and address, type affiliation and address directly below the authors' names.

4. *Please answer all questions on the reverse side of this form.*

Ways to Submit Abstracts

1. Electronically

   A. In TeX or LaTeX via e-mail.

   Macros are available in LaTeX or TeX to format your submission. Ask SIAM via e-mail (iciam@wharton.upenn.edu) to send you macros (if you have access to e-mail).

   B. Via e-mail

   Follow all preparation instructions as above. Submit to iciam@wharton.upenn.edu. *Please answer all questions on the reverse side of this form.*

2. Hard Copy—please use this form if possible

   A. Use 10-12 point size type.

   B. Type your abstract (up to 100 words), or use a letter quality printer, on this form or the equivalent in a space of width 4 1/4 ".

   C. All lines are to be flush left, single-spaced within the space designated. See enclosed sample.

   D. Abstract title should be in upper and lower case type. Capitalize the first letter of all words, except articles, prepositions and conjunctions.

This form is to be used by participants in minisymposium sessions and contributed paper sessions, whether lecture form or poster form.

ABSTRACT FORM

Please read instructions carefully before completing the form below.

Identifying the Conductivity of a One–dimensional Medium from Time Averaged and Undersampled Potential Data

The identification of coefficients appearing in differential equations has been extensively considered before. The direct problem we refer to is a two point initial BVP for a linear parabolic PDE in one spatial dimension. Our inverse problem (IP) consists of identifying the position dependent conductivity from potential data. Given the existence of a solution to the IP, we provide the weak counterpart of Kitamura and Nakagiri' s [1977] uniqueness conditions and of the IP solution method due to Ponzini and Crosta [1988]. We first average the original PDE over time, then replace said average by the arithmetic mean of potential values, in order to model data undersampling. In both cases we provide uniqueness conditions and stability estimates of the Gronwall–Bellmann type, which we apply to analytical and numerical examples.

Kitamura S, Nakagiri S, 1977, *SICON*, **15**, pp 785 – 802.

Ponzini G, Crosta G, 1988, *Transport in Porous Media*, **3**, 415–436.

Author(s) full name(s) and address(es) including department/division, city, state, and zip code

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ABSTRACTS MUST BE RETURNED UNFOLDED. DEADLINE FOR SUBMITTING ABSTRACT: _____

Send completed form to: SIAM, 3600 University City Science Center, Philadelphia, PA 19104-2688 U.S.A. e-mail: iciam@wharton.upenn.edu