Discrete Mathematics
and Theoretical Computer Science

1 Introduction

The electronic journal *Discrete Mathematics and Theoretical Computer Science* intends to become one of the very top international journals in theoretical computer science and discrete mathematics. But why do we want to create a new journal when everybody is complaining that there are already too many of them ?

The main specifics of this new journal are its distribution and subscription protocols. There will be no paper support. The advantages of an electronic journal are manyfold. Quick distribution, facilities for accessing the data and, mainly, low costs. It is quite clear that in the future the traditional way of publishing scientific papers will disappear. All libraries are complaining that their budget is decreasing while the price of subscriptions is increasing as well as the number of scientific papers. How is it possible to reconcile these two tendencies ? There is a simple answer: divide the publishing costs by (at least) 10, and the subscription fees accordingly. This is possible, thanks to the development of communication technologies, without changing the evaluation procedures and the publication standards.

We believe that now is the right time to commit to this new medium. From the commercial point of view, publishing companies (in our case, International Thomson Publishing) want to take the opportunity. They know that within 20 years, even newspapers (in their present form) might disappear. It is a challenge that every publishing company has to consider.

Our journal has the ambition to become a high standard scientific "paper". We believe that the first electronic journal on discrete mathematics and theoretical aspects of computer science which will be launched successfully will play a major role in the next years. We do not want to miss this opportunity.

For some unknown reasons the well-known scientific publishing companies do not change yet their publication procedures. Hence we have to create a journal meeting these concerns. It should be clear that switching from paper to electronic publication should not be done at the price of a lower publication quality.

2 Scientific organization

2.1 Structure of the journal

We intend to organize the journal into three sections as described below.

- *Series A – Ordinary papers* : the main section of the journal.
- *Series B – Conference proceedings* : we want in particular to offer to conference organizers together with the electronic publication of their proceedings the possibility of publishing at a low price a limited number of paper proceedings for the conference participants.
- *Series C – Special issues* : a special issue is a volume of the journal devoted to some specific topic. Every special issue will be managed by a guest editor in relation with the editor in chief.

All these three sections will be divided into volumes. For the first section, a volume will just correspond to a certain maximal number of papers. For the two last sections, a volume will correspond either to a single conference or to a specific special issue. In each given volume, every paper will have a reference number. To refer in a bibliography to a paper of the journal, one should use the models described below.

- Series A : Name of authors, Title of the paper, Disc. Maths. and Theor. Comput. Sci., Ser. A, Number of volume, Reference number of the paper, 1–Last page, Year.
- Series B or C : Name of the author, Title of the paper, [in "Name of the conference or of the special issue", Guest editors], Disc. Maths. and Theor. Comput. Sci., Ser. B, Number of volume, Reference number of the paper, 1–Last page, Year.

Here are some examples of such refered papers.

1. PHAL. A.N., STERE C.A., *Tableaux and trees*, Disc. Maths. and Theor. Comput. Sci., Ser. A, **1**, 12, 1–33, 1996.
2. PHAL. A.N., STERE C.A., *Trees and tableaux*, [in "Proc. of I.C.T.T.", Rob K. Ed.], Disc. Maths. and Theor. Comput. Sci., Ser. B, **2**, 13, 1–12, 1996.

The references used for refering to a paper will also give a way for accessing it through WWW. If you know the WWW address of the journal, one should be able to access to a specific paper through the adress `\\adress-of-the-servor\Series.Volume.Number-of-the-paper`. For example, the `http` addresses of the two previous papers will look as follows.

Paper 1 : `http:\\www.dmtcs.somewhere\A.1.12`

Paper 2 : `http:\\www.dmtcs.somewhere\B.2.13`

2.2 Scientific organization of the journal

The first section of the journal (Ordinary papers) is for the moment scientifically organized around six main topics which are themselves divided into sub-topics as presented in the sequel. Every paper will have some main section where it will be classified. It will however also appear in other sections of the journal (if necessary) through hyper-links.

This scientific organization will be used for all the papers published in the journal : even if a paper is published in the second (Conference proceedings) or in the third (Special issues) section of the journal, it will be refered in the first section (with indication of its origin) according to its topic through an hyper-link.

1. Discrete mathematics

    1.1 Combinatorics

      1.1.1 Algebraic combinatorics

      1.1.2 Bijective and enumerative combinatorics

    1.2 Error-correcting codes

    1.3 Graph Theory

2. Algebraic and combinatorial aspects of computer science

    2.1 Analysis of algorithms and data structures

    2.2 Automata and formal languages

    2.3 Computer algebra

3. Algorithms and complexity

    3.1 Algorithmic randomness

    3.2 Circuits and neural networks

    3.3 Graph algorithms

    3.4 Interactive proofs and cryptography

    3.5 Logical characterizations of complexity classes

    3.6 Proof-length complexity

    3.7 Sequential algorithms

    3.8 Structure of complexity classes and reducibilities

4. Semantics and foundations of programming

    4.1 Concurrency

    4.2 Databases and finite model theory

    4.3 Lambda calculi and functional programming

    4.4 Logic and constraint programming

4.5 Rewriting and automated deduction

4.6 Types, semantics and specifications

5. Parallel and distributed algorithms and systems

5.1 Distributed algorithms

5.2 Networks and distributed systems

5.3 Parallel programming

5.4 Parallel architectures and algorithms

3 General organization

3.1 The publisher

The publisher of the journal is "International Thomson Publishing" (ITP). All contacts and discussions are presently made with the French branch of ITP (Peter Burch) which has the support of the general direction of ITP for managing our project.

The publisher offers to the journal all the technical support necessary for an electronic publication process. He will also be responsible for the publicity and the promotional aspects of the journal.

3.2 Publishing policy

As opposed to quite all other electronical journals that are presently appearing, our journal intends to be only accessible after payment of a fee. We plan to have two kinds of fees :

1. an *institutionnal fee* : every institution (research department, laboratory, ...) must be able to suscribe to the journal. The fee will give a non restricted access to the journal for all computers an institution wants to declare. For a researcher working on a registered computer, consulting the journal will therefore be a totally transparent procedure.

2. an *individual fee* : this fee should be low. Payment should be as simple as possible (by credit card using the network facilities for instance). The payment of the fee will allow an individual suscriber to access (through a personal password) to the computer where the papers are stored (using the WWW standard).

At the end of every year, a CD-ROM will also be made with the collection of all the accepted papers of the current year. This CD-ROM will be available for libraries and individuals.

3.3 Acceptance/rejection procedures

A paper may be submitted at any level of the editorial board. The normal way should however be to submit a paper to the member of the editorial board closest to the topic of the paper. Every decision of acceptance/rejection of a paper should be taken by two members of the editorial board, the most common way of taking such a decision being a comon agreement between a field editor and the managing editor of the corresponding field.

If a paper is submitted to the editor in chief or to an associate editor, they should transmit the paper to the managing editor of the topic to which it belongs. The managing editor resends then the paper to the appropriate field editor who chooses two referees (either two external referees or a report from the choosen field editor plus an external referee). The acceptance or rejection decision is then taken by the managing editor after reception of the referee reports. If the managing editor decides to referee himself the paper, the editor in chief or an associate editor should be associated to the final decision.

In case of problem or disagreement of judgment between two editors, the editor in chief or an associate editor should be associated to the decision procedure. If the problem can not be solved by a common agreement, the final decision should be taken by the editor in chief.

If a member of the editorial board submits a paper to the journal, the submission should be made either to the editor in chief or to an associate editor if the author is a managing or a field editor, or to a managing or a field editor if the author is the editor in chief or an associate editor. In all cases, the author of the paper should not take any part in the final decision.

4 Technical organization

4.1 Management of papers

To be able to manage the journal in the best and more time-economic possible way, it seems that a specific software should be developped. The purpose of such a software would be to automate as much as possible the management of the papers submitted to the journal for the members of the editorial board. The challenge would be to be really able to publish any kind of ordinary paper in a maximal delay of two months.

5 Editorial board

The members of the editorial board can be roughly divided into five types whose roles are explained below.

1. The *editor in chief* and the *associate editors* : they are responsible of the policy and of the general management aspects of the journal.

2. The *honorary editors* : an honorary editor is a main scientific personality that supports the journal.

3. The *advisory editors* : an advisory editor is a main scientific personality that supports the journal and helps by his/her advices the editor in chief and the associated editors.
4. The *managing editors* : every managing editor is responsible of the management of a sub-topic of the journal.
5. The *field editors* : a field editor is an ordinary member of the editorial board which is normally attached to some sub-topic of the journal.

We present below the present composition of the editorial board. Its organization refers to the previous explanations.

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⋄ Honorary editors

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    ◇ Bijective and enumerative combinatorics

    - (???)

    ◇ Error-correcting codes

    (???)

    ◇ Theory of graphs

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◇ Distributed algorithms

◇ Networks and distributed systems

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◇ Error-correcting codes

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◇ Theory of graphs

- ?

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