Special issues on

# "Quantum Communication Complexity and Non-locality"

Celebrating 15 years since the publication of
**Andrew C. Yao**'s paper **"Quantum circuit complexity"**
and the inception of **quantum communication complexity**
[FOCS, November 1993]

## A joint **call for papers**

- **Theoretical Computer Science (TCS)** - Elsevier
- **Natural Computing (NACO)** - Springer

It is well known that the use of quantum information allows for the accomplishment of tasks that seem to be beyond the ability of classical information processing, and of other tasks that would be provably impossible in a classical world. Quantum communication complexity deals with distributed computational tasks for which quantum communication or the use of pre-shared entanglement cannot be simulated efficiently by classical means. In extreme cases, the effect of using quantum bits cannot be achieved classically short of transmitting an exponentially larger number of bits. Topics closely related to quantum communication complexity include quantum non-locality (with or without entanglement), as well as the Popescu-Rohrlich (PR) non-local boxes, which were recently proven to be incompatible with entangled quantum bits.

We are soliciting papers concerning quantum communication complexity, quantum non-locality, non-local boxes, and related topics.

Both **TCS** (Section C) and **NACO** are devoted to the study of computing using resources occurring in nature as well as computing inspired by nature, including quantum computing and quantum information processing. For TCS-C we are soliciting theory papers, while for NACO we are soliciting theory, experimental, and applications papers. The guest editors will divide the accepted papers between the two journals in a way that optimizes the coherence of the papers in each issue. If the authors have a very strong preference for one or the other journal, this should be stated at the time of initial submission.

Please send submissions in PS or PDF format (leaving wide margins) to one of the guest editors via email. The final version must be submitted to the relevant journal, and prepared according to the instructions of that journal.

Papers will be carefully refereed to meet the standards of publication of these two journals. We will make every effort to provide notification of acceptance/rejection within four months of submission.

Important dates:

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| **Submission deadline:** | **30 November 2007** |
| **Deadline for receipt of final manuscript:** | **30 April 2008** |
| **Publication:** | **November 2008** |

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