Voting procedure for IC and ISC

The currently voting procedure for the IC as specified in A3.5, and for the ISC as given in A3.10, has taken a large amount of time to complete at recent IOIs. This has been especially true in those years where more than one position available. This year there will be two positions available for IC; when this last occurred during IOI'2007 we required 4 rounds of voting.

It is recommended that the IOI switches to an alternative voting system and it is also recommended that the same voting system be used for all IC and ISC elections to avoid confusion.

In selecting such a system it was felt important that:
• it should be easy to understand and vote in the new system;
• spoilt ballots (e.g. due to an error in filling in the ballot or a lack of clarity in a completed ballot) should be unlikely;
• the result should be simple and quick to calculate;
• the results should be transparent;
• elections, including those for multiple candidates, should require a small number of rounds.

For these reasons, systems based on delegations ranking the candidates were discarded and the following method, based on *approval voting* is being proposed. Approval voting is used by several professional societies around the world (e.g. the MAA and IEEE).

Note that, in each round, each delegation can vote for as many candidates as they wish. After each round, the percentage of delegations in favour of each candidate can be shown to the GA. If delegations vote for all the candidates that they view as suitable for a position, then the highest scoring candidates will be those acceptable to the largest proportion of the GA.

Proposed voting rules to replace those in A3.5:

Voting, in an election with n positions, is as follows:
• In each round, countries can vote for as many candidates as they wish.
• If the top n candidates can be identified (i.e. they have a larger number of votes than the remaining candidates), they are elected and the voting finishes.
• In the event of a tie preventing the top n candidates from being identified, the largest number of candidates who can be identified as belonging to the top n are deemed elected, and a new round is held for the remaining positions amongst the candidates in that tie.
• If after two successive rounds the list of tied candidates remains unchanged, a deciding vote (for all remaining positions) is cast as per A3.2.

N3.5
The rule for resolving ties may also be defined as:
In the event of a tie preventing the top n candidates from being identified (with q candidates tied at position p, where $p \leq n < p+q$):
• If p>2, the top p-1 candidates are elected and a new round is held between the q tied candidates for the remaining positions.
• If p=1, a new round is held between the q tied candidates.