



# AMERICAN NUCLEAR SOCIETY MATHEMATICS AND COMPUTATION DIVISION

Nov., 2004  
<http://www.mcd.ans.org/newsletters>

## *Message from the Chair*

Did you know that one hundred years ago, John Ambrose Fleming invented and patented the vacuum tube? Now that I have your attention, please read on.

The Mathematics and Computations Division (MCD) concluded the ANS year June 2003 - June 2004 under the able leadership of Roger Blomquist. As MCD chair for the period, Roger worked very hard in collating data to assure the division's high score in the ANS metrics and incorporated significant changes in the strategic plan. Roger also emphasized the importance of involving and enticing the younger members of the division. I will follow Roger's lead, especially on the latter.

When one commits to run for vice-chair, it becomes a three-year commitment. So, Roger deserves a lot of credit for sitting as vice-chair, chair and now chair ex-officio. I also salute all the past chairs and officers who have made M&C a division worth belonging to.

MCD has committed to two topical meetings in 2005. The first is Monte Carlo 2005 - a joint meeting with the Radiation Protection and Shielding Division (RPSD), with RPSD as the main sponsor. Monte Carlo 2005 (<http://montecarl2005.org>, April 17-21, 2005) is hosted by the Oak Ridge/Knoxville Local Section and will be held in Chattanooga, Tennessee. M&C 2005 is MCD's main topical (<http://mcavignon2005.cea.fr/>, September 12-15, 2005). The excitement for the conference comes with its location, Avignon, France. Richard Sanchez ([Richard.sanchez@cea.fr](mailto:Richard.sanchez@cea.fr)) is campaigning very hard to get us all to come to Avignon.

So what is with the vacuum tube message? We could have been called the Mathematics and Vacuum Division!

Bernadette Kirk, Chair

## 2004 ANS Winter meeting: Mathematics and Computation Sessions

SUNDAY, NOVEMBER 14, 2004 1:00 p.m. - 2:00 P.M..  
Program Committee Meeting: Embassy Room

SUNDAY NOVEMBER 14, 2004 2:00 p.m. - 4:00 P.M.  
Executive Committee Meeting: Embassy Room

MONDAY, NOVEMBER 15, 2004 1:00 P.M.  
High-Performance Computing for Nuclear Energy  
Applications

TUESDAY, NOVEMBER 16, 2004 8:30 A.M.  
Transport Methods: General

TUESDAY, NOVEMBER 16, 2004 1:00 P.M.  
Computational Methods: General

WEDNESDAY, NOVEMBER 17, 2004 8:30 A.M.  
Geometry Representation for Monte Carlo Radiation  
Transport Codes

WEDNESDAY, NOVEMBER 17, 2004 1:00 P.M.  
Roundtable on Current Issues in Computational Methods  
Panel

## MC2005: Topical meeting of the M & C Division

### International Topical Meeting on Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications,

will be held in **Avignon, France**, on **September 12-15, 2005**. The meeting is organized on a 3 and 1/2 days basis with plenary, technical and poster sessions. Workshops and reception are planned for **Sunday, September 11, 2005**. Technical tours will be offered on Thursday afternoon and Friday. Please check the official web site of the conference:

<http://mcavignon2005.cea.fr/> ,

for more details about the meeting organization. You may download the first announcement and the call from papers from this website. For this meeting, we will review extended summaries instead of full papers. The deadline for uploading summaries to the website is **January 15th, 2005**.

MC2005 at Avignon will be the occasion for our community to discuss and present the latest developments on the applications of mathematics and computations to reactor physics and related applications of the nuclear industry. A list of technical session topics is given in the web, as well as (at the present time) 11 invited technical sessions. The meeting will offer an international forum to discuss your ideas and interests with members of the international scientific community. Please, consider coming to the meeting and presenting your work. If you have never visited Southern France and if you can afford the time , my advice is to spend at least one or two days visiting the area. For details on the area and what to do, please see the web pages.

The meeting will take place in the prestigious Palace of the Popes in the heart of Avignon. I'm looking forward to welcome you there. Until then I say to you 'à bientôt, mes amis.'

[Provided by Richard Sanchez]

## Monte Carlo2005: Joint topical meeting of the M & C Division



### Monte Carlo 2005

Monte Carlo 2005, a joint topical of the Radiation Protection and Shielding Division and Mathematics and Computation Division, will be held **April 17-21, 2005** at the Marriott Hotel and Convention Center in Chattanooga, Tennessee. The topical is hosted by the Oak Ridge/Knoxville Local Section. The conference highlights the accomplishments in Methods, Nuclear Data, Applications, and Mathematical & Computational Advances. Plans include plenary session topics on High Energy Transport, Neutral Particle Transport, and Heavy Ion Transport.

About 225 abstracts have been submitted. Plans are underway for an excellent spouse program and a reception at the Tennessee aquarium.

**Sponsors:** [ANS Oak Ridge/Knoxville Local Section](#) - [ANS Radiation Protection and Shielding Division](#) - [ANS Mathematics and Computation Division](#)

**Co-sponsors:** [ORNL Radiation Safety Information Computational Center \(RSICC\)](#) - [OECD Nuclear Energy Agency Data Bank \(NEADB\)](#)

[Canadian Nuclear Society \(CNS\)](#) - [Korean Nuclear Society \(KNS\)](#)

#### 2004

**August 6** Electronic submission of abstracts deadline

**August 23** Author acceptance notification

**December 3** Submission of full papers deadline

#### 2005

**January 21** Revisions communicated to authors

**February 4** Final text abstracts entered online

**February 18** Final papers due

**March 26** Early registration & Hotel reservation deadline

Contact: Jeff Johnson, Technical Chair, [johnsonjo@ornl.gov](mailto:johnsonjo@ornl.gov)

Bernadette Kirk, General Chair, [kirkbl@ornl.gov](mailto:kirkbl@ornl.gov)

Web address: <http://montecarlo2005.org>

[Provided by Bernadette Kirk]

## Program Committee

Another National meeting is approaching, and as usual, MCD has a full slate of interesting technical sessions for your edification. In fact, we had TOO MANY good sessions, and ANS asked us to defer one of them to the Summer meeting in San Diego! In D.C., you'll find two general sessions (Transport Methods, and Computational Methods), two special sessions (Geometry Representation for Monte Carlo Radiation Transport Codes and High-Performance Computing for Nuclear Energy Applications), and the ever-popular Round Table on Current Issues in Computational Methods (focusing this time on object-oriented software development for nuclear applications). It is important to recognize the folks responsible for these special sessions, because their significant recruiting and organizing efforts help to make MCD the quality division that we know and love. So here's a shout out to Brian Franke, Roger Blomquist and David Weber, and to Todd "Tmonster" Urbatsch.

Let's not forget that these meeting rooms would be empty if not for the authors of the contributed summaries. Having looked over most of the summaries for this conference, I am impressed with the breadth and innovation I see in our community, and I am sure you will be too.

There are a couple of issues I'd like to bring to the attention of our membership. First, at the D.C. meeting the Program Committee will be entertaining bids for hosting the 2007 MCD Topical Meeting. This topical will be co-located with OECD's Supercomputing in Nuclear Applications, and is due to be held in the western US. We are expecting bids from the Northern California and Colorado sections of ANS. If you arrive in DC early on Sunday, please join us to hear these presentations. [Program meeting: Sunday, 11/14, 1-2 pm, Embassy Room].

Second, it is time to propose special sessions for the 2005 National Meeting in DC. I emailed you about this about a month ago. If you have topics that you think would make a good special session, please contact me (palmer@ne.orst.edu). Paperwork for these sessions is due in DC in two weeks.

Third, just a quick reminder that several paper submission deadlines are approaching. The deadline for the summaries for the 2005 Summer meeting in San Diego is January 7, 2005, and the deadline for MCD 2007 in Avignon, France is January 15, 2005.

Lastly, as many of you are aware, we have changed the electronic paper review format for the past several meetings. We now assign reviewers to papers, rather than allowing reviewers to self-select papers to review. This has been working relatively well, at least from my perspective, but I would like some feedback from authors and reviewers. Under the new format, the number of reviews completed per reviewer should have decreased, lightening the load on everyone. This only works, though, if reviewers complete those reviews assigned to them. Another paper review is on the horizon, so if you are available, please participate. If not, we'll catch you the next time around.

See you in DC,

Todd Palmer  
Chair, Program Committee

Anil Prinja  
Co-chair, Program Committee

## *Honors and Awards*

Three Mathematics and Computations Division awards are planned for presentation at the upcoming MCD topical meeting to be held in Avignon, France. The **Gerald C. Pomraning Memorial Award** provides recognition to persons who have made outstanding contributions toward the advancement of the fields of mathematics and/or computations in support of advancing understanding of topics of interest to the ANS. The **MCD Distinguished Service Award** recognizes persons who have made outstanding contributions towards developing MCD via leadership, governance, standards, benchmarking, program and/or other developmental activities. The **MCD Young Member's Research Achievement Award** fulfills the following objectives: (1) to identify and reward meritorious contributions in the areas of mathematics and computations by MCD members who are in the earlier stages of their careers, and (2) to stimulate further achievements by younger individuals that will enhance the applications of mathematics and computations in the area of nuclear technology. The due date for all three awards is June 1, 2005. Further details on the awards and nomination forms may be found on the MCD web site (<http://www.mcd.ans.org/awards.html>). Please consider nominating colleagues for these awards.

Dr. Ken Shultis of Kansas State University, an MCD member, was recognized for his election to the grade of ANS Fellow at this past summer's ANS Annual Meeting in Pittsburgh. The MCD Honors and Awards Committee have a goal of promoting nominations of MCD members for the Fellow grade of ANS. This is achieved by assisting individuals who wish to nominate a colleague with the nomination process, and by identifying MCD members worthy of the Fellow grade and encouraging a colleague to take the lead on completing the nomination process. Further details and the nomination form for Fellow grade can be found at the ANS web site (<http://www.ans.org/honors/va-fellow>).

[Provided by Paul Turinsky, Honors and Awards Committee Chair]

## *ANS-10 Standards Committee*

The M&C Division sponsors the ANS-10 Standards Subcommittee. ANS-10 currently maintains four Standards in areas of interests to the M&C membership. These four Standards are:

- \*ANSI/ANS-10.2-2000 **Portability of Scientific and Engineering Software**
- \*ANSI/ANS-10.3-1995 **Documentation of Computer Software**
- \*ANSI/ANS-10.4-1987; R1998 **Guidelines for the Verification and Validation of Scientific and Engineering Computer Programs in the Nuclear Industry**
- \*ANSI/ANS-10.5-1994 **Accommodating User Needs in Computer Program Development**

ANS-10.4 and ANS-10.5 are currently being revised. Dr. Charles Martin is the Chair for the ANS-10.5 effort. He can be reached at [charlesm@dnfsb.gov](mailto:charlesm@dnfsb.gov).

Andy Smetana is the Chair for the ANS-10.5 effort. He can be reached at [andy.smetana@srs.gov](mailto:andy.smetana@srs.gov).

Finally, if you have an idea for a new Standard or an interest in serving on the ANS-10 Standards Subcommittee, please contact Andy Smetana.

**[Provided by Andy Smetana, Standards Committee Chair]**

## *Joint Benchmark Committee*

The Joint Benchmark Committee (JBC) will meet Sunday, November 14, in the Embassy room of the Omni Shoreham Hotel in Washington, DC. All those interested in participating in or just hearing about the JBC activities are welcomed to attend. We will discuss the proposed analytical benchmark TIEL as well as establishing a yearly benchmark award for the individual who has exemplified the benchmark ethic above and beyond the call. Also benchmarks in other areas such as isotopics, homeland security and reactor physics will be discussed. Finally, Richard Sanchez will detail the role of benchmarks in the upcoming M&C Topical and there will be benchmarking news for the M&C membership. Hope to see ya there.

B. Ganapol

**Editor's Message:** This newsletter will be issued twice a year and can be accessed electronically at <http://www.mcd.ans.org/newsletters>. Please send your newsletter items and comments to me, Avneet Sood at Los Alamos National Laboratory, P.O. Box 1663 MS F663, Los Alamos, NM 87545; Tel: (505) 667-2119; email: [sooda@lanl.gov](mailto:sooda@lanl.gov).

## **2003-2004 OUTGOING ANS MATHEMATICS AND COMPUTATIONS DIVISION OFFICERS**

Chair: Roger Blomquist (ANL, 630/ 252-8423, [rblomquist@anl.gov](mailto:rblomquist@anl.gov) )  
Vice-Chair/Chair Elect: Bernadette L. Kirk (ORNL, 865/574-6176, [blk@ornl.gov](mailto:blk@ornl.gov) )  
Secretary: Michael Scott McKinley (LLNL, 925/424-2738, [mckinley9@llnl.gov](mailto:mckinley9@llnl.gov) )  
Treasurer: William R. Martin (Univ. of Michigan, 734/764-5534, [wrn@umich.edu](mailto:wrn@umich.edu) )  
Outgoing Chair: Richard Sanchez (CEA de Saclay, 33-01-5908-5404, [richard.sanchez@cea.fr](mailto:richard.sanchez@cea.fr) )

## **2004-2005 INCOMING ANS MATHEMATICS AND COMPUTATIONS DIVISION OFFICERS**

Chair: Bernadette L. Kirk (ORNL, 865/574-6176, [blk@ornl.gov](mailto:blk@ornl.gov) )  
Vice-Chair/Chair Elect: Alireza Haghighat (Univ. of Florida, 352/392-1401, [haghighat@ufl.edu](mailto:haghighat@ufl.edu) )  
Secretary: Ronald E. Pevey (Univ. of Tennessee, 423/974-7573, [rpevey@utk.edu](mailto:rpevey@utk.edu) )  
Treasurer: Abderrafi Ougouag (Bechtel BWXI, INEEL, 208/526-7659, [oom@inel.gov](mailto:oom@inel.gov) )

## **EXECUTIVE COMMITTEE**

2004 Barry Ganapol (U. Arizona, 520/621-4728, [cowboy.ganapol@ncc.arizona.edu](mailto:cowboy.ganapol@ncc.arizona.edu) )  
2004 Nam Zin Cho (KAIST, 82-42-869-3819, [nzcho@sorak.kaist.ac.kr](mailto:nzcho@sorak.kaist.ac.kr) )  
2004 John Wagner (ORNL, 865/241-3570, [wagnerjc@ornl.gov](mailto:wagnerjc@ornl.gov) )  
2005 Tom Sutton (KAPL, 518/395-7407, [sutton@kapl.gov](mailto:sutton@kapl.gov) )  
2005 Cassiano De Oliveira (Georgia Tech, 404/385-4928, [cassiano.deoliveira@nre.gatech.edu](mailto:cassiano.deoliveira@nre.gatech.edu) )  
2005 Madeline Feltus (USDOE, 202/506-0541, [madeline.feltus@hq.doe.gov](mailto:madeline.feltus@hq.doe.gov) )  
2006 Jeffrey Favorite (LANL, 505/667-7941, [fave@lanl.gov](mailto:fave@lanl.gov) )  
2006 Farzhad Rahnema (Georgia Tech, 404/894-3731, [farzad.rahnema@nre.gatech.edu](mailto:farzad.rahnema@nre.gatech.edu) )  
2006 Scott Palmtag (Studsvik Scandpower, 208/522-8304, [palmtag@soa.com](mailto:palmtag@soa.com) )  
2007 Horia-Nicolae M. Gheorghiu (Studsvik-Scandpower)  
2007 Robert C. Singleterry, Jr. (NASA, [r.c.singleterry@larc.nasa.gov](mailto:r.c.singleterry@larc.nasa.gov) )  
2007 Avneet Sood (LANL, 505/667-2119, [sooda@lanl.gov](mailto:sooda@lanl.gov) )

## **BOARD LIAISON**

Larry Foulke (Bettis, 412/476-7511, [larry.r.foulke@verizon.net](mailto:larry.r.foulke@verizon.net) )

## **CHAIRS OF STANDING DIVISION COMMITTEES**

FINANCE: Abderrafi Ougouag (Bechtel BWXI, INEEL, 208/526-7659, [oom@inel.gov](mailto:oom@inel.gov) ),  
HONORS AND AWARDS: Paul Turinsky (N.C. St. Univ., 919/515-5098, [turinsky@eos.ncsu.edu](mailto:turinsky@eos.ncsu.edu) )  
MEMBERSHIP: Madeline A. Feltus (USDOE, 202/506-0541, [madeline.feltus@hq.doe.gov](mailto:madeline.feltus@hq.doe.gov) )  
NOMINATING: Roger Blomquist (ANL, 630/ 252-8423, [rblomquist@anl.gov](mailto:rblomquist@anl.gov) )  
PROGRAM: Todd Palmer (Oregon State U., 541/737-7064, [palmerts@engr.orst.edu](mailto:palmerts@engr.orst.edu) ) (Asst. Chair)  
Anil Prinja (U. New Mexico, 505/277-4600, [prinja@unm.edu](mailto:prinja@unm.edu) ) (Chair)  
PUBLICITY: Avneet Sood (LANL, 505/667-2119, [sooda@lanl.gov](mailto:sooda@lanl.gov) )  
STANDARDS: Andy Smetana (Westinghouse SRC, 803/725-4192, [andrew.smetana@srs.gov](mailto:andrew.smetana@srs.gov) )