On November 4-5, 2011, Christopher Newport University will host the Fall 2011 MD-DC-VA Section Meeting of the MAA. Highlights include:

**Friday:** Robin Blankenship from Morehead State University will be offering a late afternoon workshop entitled “Undergraduate Investigations in Graph Theory and Knot Theory.” Marjorie Se- nechal from Smith College will be presenting the Friday evening banquet address “Quasicrystals: a mathematical goldmine.”

**Saturday:** In addition to the contributed paper sessions, there will be two invited addresses: The first one is given by Bud Brown from the Virginia Tech. He will speak on “The Many Names of (7,3,1) and the Unity of Discrete Mathematics.” The second invited address will be given by Robin Blankenship and her talk is entitled “Exhilaration and Consterna-

The deadline for submissions of papers is October 21, 2011. The online submission forms are available at http://sections.maa.org/mdcva/Fall2011CallForPapers.php.

For more information about the Fall meeting, including abstracts and biographies of the invited speakers, see pages 4 and 5.

**Lodging**

There are three local hotels with blocks of rooms for this conference. Use code “MAA” when making reservation.

- **Comfort Inn** - Patrick Henry Mall 12330 Jefferson Avenue, Newport News, VA 23602 (757) 249-0200 www.newportnewscomfortinn.com

- **Point Plaza Suites** 950 J. Clyde Morris Blvd Newport News, VA 23601 757-599-4460 or 1-800-841-1112 www.pointplazasuites.com

- **Omni Newport News Hotel** 1000 Omni Blvd Newport News, VA 23606 (757) 873-6664 www.omnihotels.com/NewportNews

To find maps, hotels, registration, and program information, visit the MD-DC-VA Section website at http://sections.maa.org/mdcva/index.php
We hope you have had a wonderful, relaxing and productive summer and that your semester has started off well. As you are busy planning your schedules around preparing lectures, grading papers and conducting research, please mark your calendars to attend the fall meeting at Christopher Newport University, November 4 – 5, 2011. It is sure to be an interesting meeting and a great time to recharge your batteries for the end of the semester.

We would like to inform you about two new initiatives that the Executive Committee will be working on in the upcoming years. First, we are going to form a committee to look into the status of mathematics education at all levels. Certainly we will not be the only voice in this choir, but we feel that, given the mission of our organization, we should be involved in the discussion. We know that a number of our members have already looked into this topic extensively and we look forward to hearing from you. Dr. Randy Cone, Assistant Professor of Mathematics and head of the Virginia Military Institute Mathematics Education and Resource Center, has been appointed the chair of this committee. We will discuss this more at the fall meeting, but if you have any questions now or would like to be involved in some way, please contact Randy at conere10@vmi.edu.

The second initiative deals with increasing the number of institutions that are represented at our meetings. We hope that those of you who attend our meetings agree that they offer many interesting activities and wonderful networking opportunities for new and “not so new” faculty alike. We would like for more of the region’s faculty to get to experience this. If you have any suggestions for how we can increase the number of institutions that are represented at our meetings or how we can improve the services we offer, please contact Dan Joseph at josephds@vmi.edu. We would love to hear your ideas.

This summer’s MathFest in Lexington, Kentucky was a great success. The attendance of about 1400 was nearly a record. Among the highlights were Manjul Bhargava’s fascinating and lucid Hedrick lectures on elliptic curves, additional invited addresses on a wide range of topics, a full student (Continued on page 3)

New Software Models Immune Responses

Researchers with the Virginia Bioinformatics Institute at Virginia Tech have released an upgrade to the institute's Enteric Immunity Simulator (ENISI) software, which models immune responses to beneficial and harmful bacteria that enter the gastrointestinal tract of mice, pigs, and humans. ENISI allows users to create enteric systems such as the gut-associated mucosal immune system in silico, providing a better glimpse of how the immune system responds to pathogens that invade the bacteria-rich environment of the gut.

(For full story go to http://www.sciencedaily.com/releases/2011/10/111006132955.htm.)

Virtual Institutes to Support the Scientific Collaborations of the Future

The National Science Foundation (NSF) today announced Science Across Virtual Institutes (SAVI), an effort to motivate collaboration among scientists and educators around the globe to spur scientific discovery. By connecting researchers with common interests and goals, SAVI can better leverage taxpayer resources while helping to address some of society's most vexing problems.

The board was presented and approved a balanced budget for 2012. The organization ran a $453,000 deficit in 2010 and is projected to run a $145,000 deficit in 2011. Although these are not a large percentage of the overall operating budget of about $8 million, and although the organization still has $2 million or more in available reserves, the leadership and board all recognize that deficits of the sort we have experienced are not sustainable in the long term. The balanced budget represents true belt tightening by the organization, as well as prioritizing activities and programs. By all indications, the leaders of the MAA are charting a prudent and sound course for the organization.

On the personnel side, Executive Director Tina Straley will retire at the end of 2011, and Treasurer John Kenelly has just relinquished his post as well. The board approved the appointment of Associate Executive Director Michael Pearson to succeed Straley. Jim Daniel, emeritus professor from the University of Texas, was elected by the board to become the new treasurer.

In other national organization news, work is underway to redesign and update the MAA website. This activity is being given a high priority because the MAA increasingly uses the internet to serve the membership, deliver products, and carry on its business. One example is the hosting of Webwork by the MAA. Members interested in learning more about this online homework system may consult http://webwork.maa.org/.

Again, we look forward to seeing you at Christopher Newport in November. In the mean time, please let us know if there is any way we can better serve you.

**Plan now for the Spring Meeting at Stevenson University, April 13 - 14, 2012!**
Fall Meeting - Featured Speakers

Workshop - Undergraduate Investigations in Graph Theory and Knot Theory

Robin Blankenship  
Morehead State University

Abstract: Come prepared to work collaboratively on explorations of my former research students; no prior knowledge of graph theory and knot theory required! We will begin by constructing graphs from Sudoku puzzles and Chessboards, and then attempt to create book embeddings of these graphs. Next we will move pebbles around these graphs, in an attempt to find minimal pebbling numbers for them. Finally, we will make puzzles out of hex tiles, asking various combinatorial questions about creating hex tile knot mosaics. These hands-on activities will serve as background for my talk on Saturday, where you may take on leadership roles in the brief moments I allow the general audience to explore the topics prior to revealing the conclusions obtained by my undergraduates!

Biographical Sketch: Dr. Blankenship is an associate professor of mathematics at Morehead State University. She obtained her MA in mathematics at the University of North Carolina - Wilmington with thesis in chaos theory, her PhD in mathematics at Louisiana State University - Baton Rouge with dissertation in graph theory, concluding with a post-doctoral position in mathematics education at Appalachian State University. While a graduate student, her teaching was recognized through several awards, including receiving the LSU Alumni Association Teaching Assistant Award twice, and more recently receiving the Kentucky MAA University Teaching Award. Her interests vary, including conducting undergraduate research in graph theory and knot theory, providing workshops for teachers, touring elementary schools with her Math Mobile, and writing a play called "The Last Fraction Hero", which toured over 32,000 elementary students through The Little Company, a theater group at MSU.

Banquet Address - Quasicrystals: a mathematical goldmine

Marjorie Senechal  
Smith College

Abstract: The Nobel Foundation awarded its chemistry prize this year to materials scientist Dan Shechtman "for the discovery of quasicrystals." I will explain what quasicrystals are (and are not), and why mathematicians should thank him too.

Biographical Sketch: Marjorie Senechal, now Louise Wolff Kahn Professor Emerita in Mathematics and History of Science and Technology at Smith College, where among other things she was founding director of the Kahn Liberal Arts Institute which supports cross-disciplinary research by teams of faculty and students.

Marjorie began mathematical life in number theory but migrated to discrete geometry early on. She is the author of "Quasicrystals and Geometry" (Cambridge University Press) and editor of "Shaping Space" (the second edition will be published by Springer next year).
Invited Address: *The Many Names of (7,3,1) and the Unity of Discrete Mathematics*

**Ezra (Bud) Brown**  
*Virginia Tech*

**Abstract:** In the world of discrete mathematics, we encounter a bewildering variety of topics with no apparent connection between them. There are block designs in combinatorics, finite projective planes in geometry, round-robin tournaments and map colorings in graph theory, (0, 1)-matrices in linear algebra, quadratic residues in number theory, error-correcting codes on the internet, and the torus at the doughnut shop.

But appearances are deceptive, and this talk is about the (7,3,1) design, a single object with many names that connects all of these topics. Along the way, we'll learn how Leonhard Euler was once spectacularly wrong, how P. J. Heawood was almost completely right, and what happened when Richard Hamming got mad at a computer.

**Biographical Sketch:** Ezra (Bud) Brown grew up in New Orleans, has degrees from Rice and LSU, and has been at Virginia Tech since 1969, where he is currently Alumni Distinguished Professor of Mathematics. Most of his research has been in number theory and combinatorics, but one of his favorite papers was written with a sociologist. During the summers, he does applied mathematics in the Washington, DC Area.

Ezra has received the Allendoerfer and Polya Awards for expository writing from the Mathematical Association of America. He has served the MAA’s MD/DC/VA Section in a number of capacities, including Section Governor. He enjoys singing in operas, playing jazz piano, gardening, and kayaking, and he occasionally bakes biscuits for his students.

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Invited Address: *Exhilaration and Consternation: Adventures in Conducting Undergraduate Research*

**Robin Blankenship**  
*Morehead State University*

**Abstract:** One day you are sitting in your office, chipping away at your responsibilities: preparing for class, grading papers, producing paperwork for committees, planning your next academic adventure into research, creating workshops for teachers, or whatever it is that you do to find and maintain your niche. There comes a knock at your door. "I need a research adviser to help me;" she says, "Are you willing?" Ah, the excitement, and...the fear. Being an adviser for research is as different from working on your dissertation as being a teacher is different from being a student. I will relate my personal story of entering this endeavor: the trials and tribulations, the excitement and revelations, as I carry you through the results my students have produced over the past few years. Come explore topics in graph theory and knot theory with me!

**Biographical Sketch:** Robin Blankenship also is scheduled to conduct the Friday evening workshop. Her biographical sketch appeared on page 4.

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Solution to Pinwheel Sudoku

Flip vertical
Section News

New Faculty

James Madison University is pleased to welcome three new faculty members to the Department of Mathematics and Statistics. Joshua Ducey received his Ph. D. in Mathematics from University of Florida in May 2011. His area of research is Algebraic Combinatorics. LouAnn Lovin joins the department from the College of Education at JMU. Her area of interest is Mathematics Education. Edwin O'Shea received his Ph.D. from the University of Washington in 2006. He worked at University College Cork, Ireland, for two years. His area of research is Combinatorics and Computational Algebra.

Radford University is pleased to welcome two new faculty members in the Department of Mathematics and Statistics. Yong Xu obtained his Ph.D. degree in Mathematics with a concentration on Statistics in August 2011 from the University of South Florida. He joined the department as an Assistant Professor starting fall 2011. His research interest is in environmental science and biostatistics. He interned at American Cancer Society and H. Lee Moffitt Cancer Center for about one and half years. Brenda Hastings was hired as a full time Instructor. Ms. Hastings has a bachelor’s degree in Mathematics and Psychology (dual degree) from Rensselaer Polytechnic Institute, and a master’s in Mathematics from Virginia Tech. She taught in high school for 3.5 years and was previously teaching at Radford University as an adjunct faculty member.

Shenandoah University is pleased to welcome Paul Grajdeanu as an Assistant Professor in the Department of Mathematics.

University of Maryland is pleased to welcome Elizabeth Creath as a new lecturer in the Department of Mathematics. She received her M.S. from the University of North Carolina at Wilmington.

University of Maryland is pleased to welcome four new faculty members: Assistant Professors Amin Gholampour and Christian Zickert, and Professors Patrick Brosnan, Pierre-Emmanuel Jabin, and Jian-Jian Ren. Gholampour's research interests include Gromov-Witten and Donaldson-Thomas invariants. Zickert works on geometry/topology and algebraic K-theory. Brosnan's research is in Hodge theory and algebraic geometry. Jabin's research is in partial differential equations and kinetic theory. Ren's work is in mathematical statistics, especially the analysis of censored data.

Virginia Union University is pleased to welcome Kaiem L. Frink as a faculty member in the School of Mathematics, Science and Technology. His educational background includes a Master of Science Degree in Mathematics and a Bachelor of Science Degree in Computer and Information Systems with a minor in Geographical Information Systems from Elizabeth City State University.

Virginia Wesleyan College is pleased to welcome two Visiting Assistant Professors in the Department of Mathematics. Kristin Burney received her Ph.D. from Virginia Commonwealth University. Audrey Malagon received her Ph.D. from Emory University.
Awards and Grants

Hassan Hamdan, Professor in the Department of Mathematics at James Madison University, is on a two-semester sabbatical at Arab American University in Jenin, Palestine. Hassan Hamdan and Samatha Bates Prins became US citizens.

Camron Withrow was named Dean’s Scholar for his outstanding academic performance as well as his undergraduate research involving elliptic curves and algebraic geometry. He presented the results of this research at an undergraduate research forum at Radford University. Mr. Withrow graduated in May, 2011 and is now enrolled as a Ph.D. seeking student in the Mathematics Department at Virginia Tech.

Radford University joined with other universities in Virginia to adopt the symbolic computation system Mathematica, as part of a state-wide license agreement with Wolfram, Inc.

In August, the University of Maryland Washington received notification that our “STEM Talent Expansion Through Research, Engagement, Preparation and Scholarships” STEP grant was funded by the National Science Foundation. The grant involves UMW faculty in mathematics, including Co-PI Debra Hydorn, as well as in biology, chemistry, environmental science and education. Grant activities include modifying our pre-calculus course to include science data collection and analysis activities and providing Supplemental Instruction peer tutoring for Calculus I and II.

Larry Washington, a professor of Mathematics at the University of Maryland was selected as one of the four Distinguished Scholar-Teachers for 2011-2012. Professor Ricardo Nochetto was selected as a SIAM Fellow for 2011. Assistant Professor Maria Cameron won a Sloan Research Fellowship for 2011.

Transitions — Promotions, Retirements and Remembrances

Elizabeth Arnold, Nusrat Jahan, Carla Martin, Roger Thelwell and Ling Xu of James Madison University were promoted to the rank of tenured Associate Professor while Hasan Hamdan, LouAnn Lovin, Laura Taalman and Paul Warne were promoted to the rank of full Professor.

Randall Helmstuter of the University of Mary Washington was promoted to the rank of Associate Professor with tenure.

Weidong Mao and Zhifu Xie of Virginia State University were promoted to the rank of Associate Professor.

Michael Hill (beginning fall 2010), and Thomas Mark, Mikhail Ershov, Christian Gromoll (beginning fall 2011) of the University of Virginia were promoted to the rank of tenured Associate Professor.

The University of Maryland regrets to announce the passing of two of its professors: Professor Emeritus John Osborn, on May 30, 2011, at the age of 74. He specialized in numerical analysis and elliptic partial differential equations, and had served in a number of administrative positions. Professor Ken Lopez-Escobar, on September 1, 2011, at the age of 74. He worked in logic, with special interest in intuitionistic proof systems.
Programs and Conferences

The sixth annual Shenandoah Undergraduate Mathematics and Statistics (SUMS 2010) Conference was held at James Madison University on Saturday, October 23. Invited speakers were Ravi Raman krishna, Cornell University, and Cliff Stoll, Acme Klein Bottle Company. This year’s SUMS conference will be held on Saturday, October 22, 2011 at JMU. The conference is a one-day undergraduate research conference that attracts about 300 participants each year. Ruth Charney of Brandeis University will give the opening address titled “From Robotics to Geometry” and the closing address will be offered by Colin Adams / Sir Randolph Bacon III of Williams College on “What Knot to Do When Sailing”. Undergraduates will present posters and give talks on their research. On-site registration is possible but advance registration includes free lunch. The schedule of talks for the conference should be available on the SUMS website www.jmu.edu/mathstat/sums. Expanding Your Horizons, a one day conference aimed at girls in grades 7 thru 10, was held April 9, 2011. Girls each participate in exciting, hands-on workshops organized by JMU mathematics and statistics faculty and attend a keynote speech by a prominent woman scientist.

During the summer of 2011 the College of Science and Technology at Radford University sponsored a program called Summer Bridge. This program, funded in part by local corporations, brought 62 high school girls to campus for one week of study and exploration in three areas: space science, forensic science, and environmental science. The space science track was conducted by faculty from the Department of Mathematics and Statistics. In this track, the students review the mathematics of conic sections, geometry and trigonometry, and then applied these to activities involving surveying, projectile motion, and model rocketry.

Fall Puzzle: Pinwheel— Laura Taalman

Rules: Fill in the grid so that each row, column, block, and shaded square contains the numbers 1-9 exactly once.
To see the solution go to page 5.

Engineers Create Touchscreen Braille Writer

Each summer, under the red-tiled roofs and sandstone of Stanford, the Army High-Performance Computing Research Center (AHPCRC) invites a select group of undergraduates from across the country gather for a two-month immersion into the wonders of advanced computing.

Some of the undergraduates are gathered into teams. Some work alone. All are assigned mentors and tasked with a challenge. They compete, American Idol-style, for top honors at the end of the summer.

To read more go to
(http://www.sciencedaily.com/releases/2011/10/111011102111.htm)

From upcoming book titled “Beyond Sudoku” by Laura Taalman and Phil Riley.


**Treasurer’s Report - Jan Minton**

October 1, 2011

**General Account** Balance, March 30, 2011 $6,829.73

**Receipts**

Meeting Registrations, Spring 11 $3,695.00
MAA Subvention

**Expenses**

Meals, Spring 11 $3,088.55
Speaker expenses, Spring 11 794.75
PayPal processing fee, Spring 11 120.20
John Smith teaching award, Spring 11 200.00
Teaching award plaque 77.38
Supplies 66.75
Postage 13.98
Transfer to Project NExT Fund 2,105.00

**Total Receipts** $3,695.00 **Total Expenses** $6,466.61

**General Account** Balance, October 1, 2011 $4,058.12

**John G. Milcetich Memorial Student Achievement Fund**

Balance, March 30, 2011 $1,170.42
Contributions, Spring 11 235.00
Vendor Fees, Spring 11 200.00
MAA Book Sale Spring 11 95.88
Interest 3.95
Student Poster Awards (150.00)
Student Talk Awards (175.00)

**John G. Milcetich Memorial Student Achievement Fund**, October 1, 2011 $1,380.25

**Section NExT Fund** Balance, March 30, 2011 $1,188.76
From registration fees, Spring 11 870.00
Contributions, Spring 11 5.00
Meals, Spring 11 (481.00)

**Section NExT Fund** Balance, October 1, 2011 $1,582.76

**Project NExT Fund** Balance, March 30, 2011 $240.00
Contributions, Spring 11 155.00
Transfer from General Fund 2,105.00
Project NExT Fellowship 2011-2012 (2,500.00)

**Project NExT Fund** Balance, October 1, 2011 $0.00
## Section Officers

*For complete contact information, visit our website, [http://sections.maa.org/mddcva/section_officers.php](http://sections.maa.org/mddcva/section_officers.php)*

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