University of California, Riverside
Department of Mathematics
Calendar of Events
Winter 2002
Week of June 3 - 7, 2002

Monday
June 3
4:10-6:00 pm
Seminar: Surge 275
Speaker: CATEGORY THEORY
       James Dolan

Tuesday
June 4
2:10-3:30 pm
Seminar: Surge 275
Speaker: QUANTUM GRAVITY
        Professor John Baez, UCR
        Categorified Gauge Theory

3:40-4:30 pm
Seminar: Surge 268
Speaker: FUNCTIONAL ANALYSIS
        Professor J. D. Stasney, UCR
        PV Numbers and Pisot's Analytic Characterization of
        Algebraic Numbers, II

3:40-4:30 pm
Seminar: Surge 275
Speaker: ALGEBRAIC GEOMETRY
        TBA
        TBA

Wednesday
June 5
No Seminar

Thursday
June 6
9:10-11:00 am
Seminar: Surge 275
Speaker: TOPOLOGY
        Professor Desmond Sheiham, UCR
        Homology Torsion, Knots and Links

2:10-3:30 pm
Seminar: Surge 275
Speaker: QUANTUM GRAVITY
        Professor John Baez, UCR
        Categorified Gauge Theory

3:40-5:00 pm
Seminar: Surge 275
Speaker: MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS
        Ms. Britta Daudert, UCR
        Bose-Einstein Condensates and Solitons

Friday
June 7
3:10-4:00 pm
Seminar: Surge 275
Speaker: COMMUTATIVE ALGEBRA
        TBA
        TBA
<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Seminar</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>May 27</td>
<td>4:10-6:00 pm</td>
<td>Surge 275</td>
<td>CATEGORY THEORY</td>
<td>James Dolan</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>May 28</td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
<td>Professor John Baez, UCR</td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:40-4:30 pm</td>
<td>Surge 268</td>
<td>FUNCTIONAL ANALYSIS</td>
<td>Professor J. D. Stafney, UCR</td>
<td>PV Numbers and Pisot's Analytic Characterization of Algebraic Numbers, I</td>
</tr>
<tr>
<td>Wednesday</td>
<td>May 29</td>
<td>4:10-5:00 pm</td>
<td>Surge 268</td>
<td>MATHEMATICS COLLOQUIUM</td>
<td>Professor Gregg Zuckerman, Yale University</td>
<td>Lie Algebra and Combinatorics</td>
</tr>
<tr>
<td>Thursday</td>
<td>May 30</td>
<td>9:10-11:00 am</td>
<td>Surge 275</td>
<td>TOPOLOGY</td>
<td>Professor Desmond Sheiham, UCR</td>
<td>Introduction to Chain Complexes, CW-complexes and Whitehead Torsion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
<td>Professor John Baez, UCR</td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:40-4:30 pm</td>
<td>OLMH 1123</td>
<td>REPRESENTATIONS &amp; GEOMETRY</td>
<td>Professor Ivan Penkov, UCR</td>
<td>TBA</td>
</tr>
<tr>
<td>Friday</td>
<td>May 31</td>
<td>3:10-4:00 pm</td>
<td>Surge 275</td>
<td>COMMUTATIVE ALGEBRA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
</tbody>
</table>
Mathematics Colloquium

by Professor Gregg Zuckerman
Yale University

May 29, 2002 from 4:10-5:00 p.m.
(Tea Time starts at 3:40 p.m.)
Surge 268

Title: "Lie Algebras and Combinatorics"
## University of California, Riverside

**Department of Mathematics**

**Calendar of Events**

**Winter 2002**

**Week of May 20 - May 24, 2002**

<table>
<thead>
<tr>
<th><strong>Monday</strong></th>
<th><strong>Tuesday</strong></th>
<th><strong>Wednesday</strong></th>
<th><strong>Thursday</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>May 20</td>
<td>May 21</td>
<td>May 22</td>
<td>May 23</td>
</tr>
<tr>
<td>4:10-6:00 pm</td>
<td>2:10-3:30 pm</td>
<td>4:10-5:00 pm</td>
<td>9:10-11:00 am</td>
</tr>
<tr>
<td>Seminar: Surge 275</td>
<td>Seminar: Surge 275</td>
<td>Seminar: Surge 275</td>
<td>Seminar: Surge 275</td>
</tr>
<tr>
<td>Speaker: CATEGORY THEORY</td>
<td>Speaker: QUANTUM GRAVITY</td>
<td>Speaker: MATHEMATICS COLLOQUIUM</td>
<td>Speaker: TOPOLOGY</td>
</tr>
<tr>
<td>Title: James Dolan</td>
<td>Title: Professor John Baez, UCR</td>
<td>Title: Professor Feng Luo, Rutgers University, New Brunswick</td>
<td>Title: Professor Slawomir Kwasik, Tulane University</td>
</tr>
<tr>
<td>3:40-4:30 pm</td>
<td>3:40-4:30 pm</td>
<td>3:40-4:30 pm</td>
<td>3:40-4:30 pm</td>
</tr>
<tr>
<td>Seminar: Surge 268</td>
<td>Seminar: Surge 275</td>
<td>Seminar: Surge 268</td>
<td>Seminar: OLMH 1123</td>
</tr>
<tr>
<td>Speaker: FUNCTIONAL ANALYSIS</td>
<td>Speaker: ALGEBRAIC GEOMETRY</td>
<td>Speaker: MATHEMATICS COLLOQUIUM</td>
<td>Speaker: REPRESENTATIONS &amp; GEOMETRY</td>
</tr>
<tr>
<td>Title: Professor Feng Xu, UCR</td>
<td>Title: Professor Muriel Caibar, UCR</td>
<td>Title: Professor Feng Luo, Rutgers University, New Brunswick</td>
<td>Title: Professor Ivan Penkov, UCR</td>
</tr>
<tr>
<td>3:40-4:30 pm</td>
<td>3:40-4:30 pm</td>
<td>3:40-4:30 pm</td>
<td>3:40-5:00 pm</td>
</tr>
<tr>
<td>Seminar: Surge 275</td>
<td>Seminar: QUANTUM GRAVITY</td>
<td>Seminar: Surge 275</td>
<td>Seminar: MATHEMATICAL PHYSICS &amp; DYNAMICAL SYSTEMS</td>
</tr>
<tr>
<td>Speaker: Categorified Gauge Theory</td>
<td>Speaker: Professor John Baez, UCR</td>
<td>Speaker: Categorified Gauge Theory</td>
<td>Speaker: Professor Alexander Teplyaev, UCR</td>
</tr>
<tr>
<td>Title: Matrix Integrals</td>
<td>Title: Geometric Effective Nullstellensatz</td>
<td>Title: On Stability of Genuine and Fake Spherical Space Forms</td>
<td>Title: Spectral Zeta Function of the Sierpinski Gasket</td>
</tr>
<tr>
<td>Time</td>
<td>Seminar</td>
<td>Location</td>
<td>Speaker</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Friday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 24</td>
<td>11:10-12:00 pm</td>
<td>Surge 268</td>
<td>Colin McLaughlin, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The Heisenberg Group</td>
</tr>
<tr>
<td></td>
<td>3:10-4:00 pm</td>
<td>Surge 275</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TBA</td>
</tr>
</tbody>
</table>
Mathematics Colloquium

by Professor Feng Luo
Rutgers University, News Brunswick
May 22, 2002 from 4:10-5:00 p.m.
(Tea Time starts at 3:40 p.m.)
Surge 268

Title: "Combinatorial Ricci Flow on Surfaces"

Abstract: Given a triangle in the plane, is there any "natural" way to deform it into an equilateral triangle? The answer is affirmative and the differential equation of the evolution is the combinatorial analogous of the Ricci flow for Riemannian metrics. We call the equation the combinatorial Ricci flow. The combinatorial Ricci flow can be defined on any surface with a triangulation. We prove that the 2-dimensional combinatorial Ricci flow always converges to the unique metric of constant combinatorial curvature. The later object is closely related to the work of Koebe, Andreev and Thurston on circle packings on surfaces. This is a joint work with B. Chow.
University of California, Riverside  
Department of Mathematics  
Calendar of Events  
Winter 2002  
Week of May 20 - May 24, 2002

**Monday**  
May 13  
4:10-6:00 pm  
Seminar: Surge 275  
Speaker: CATEGORY THEORY  
James Dolan

**Tuesday**  
May 14  
2:10-3:30 pm  
Seminar: Surge 275  
Speaker: QUANTUM GRAVITY  
Professor John Baez, UCR  
Categorified Gauge Theory

3:40-4:30 pm  
Seminar: Surge 268  
Title: FUNCTIONAL ANALYSIS  
Professor Feng Xu  
Matrix Integral

**Wednesday**  
May 15  
4:10-5:00 pm  
Seminar: Surge 268  
Title: MATHEMATICS COLLOQUIUM  
Professor

**Thursday**  
May 16  
9:10-11:00 am  
Seminar: Surge 275  
Title: TOPOLOGY

2:10-3:30 pm  
Seminar: Surge 275  
Speaker: QUANTUM GRAVITY  
Professor John Baez, UCR  
Categorified Gauge Theory

3:40-4:30  
Seminar: OLMH 1123  
Title: REPRESENTATIONS & GEOMETRY  
Professor Ivan Penkov, UCR
# University of California, Riverside
## Department of Mathematics
### Calendar of Events
#### Winter 2002
##### Week of May 13 - May 17, 2002

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
<td>May 13</td>
<td>4:10-6:00 pm</td>
<td>Surge 275</td>
<td>CATEGORY THEORY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: James Dolan</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td>May 14</td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:40-4:30 pm</td>
<td>Surge 268</td>
<td>FUNCTIONAL ANALYSIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor Greg Lewicki, Jagiellonian University, Krakow, Poland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Contractive and Optimal Sets in Modular Spaces</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td>May 15</td>
<td>4:10-5:00 pm</td>
<td>Surge 268</td>
<td>MATHEMATICS COLLOQUIUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor Brian Jefferies, UNSW Australia</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Functional Calculi for Noncommuting Matrices</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td>May 16</td>
<td>9:10-11:00 am</td>
<td>Surge 275</td>
<td>TOPOLOGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Amanda Brown, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Simple Closed Curves on Surfaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4:00-5:30 pm</td>
<td>Surge 275</td>
<td>ALGEBRAIC GEOMETRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor Muriel Caibar, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>More Applications &amp; Multiplier Ideals</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td>May 17</td>
<td>11:10-12:00 pm</td>
<td>Surge 268</td>
<td>DIFFERENTIAL GEOMETRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>Speaker: Professor McKenzie Wang, University of McMaster</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>Conserved Quantities of Certain Cohomogeneity 1 Ricci-flat-equations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:10-4:00 pm</td>
<td>Surge 275</td>
<td>COMMUTATIVE ALGEBRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seminar:</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Speaker:</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Title:</td>
<td>TBA</td>
</tr>
</tbody>
</table>
3:10-4:00  OLMH 1123
Seminar: REPRESENTATIONS & GEOMETRY
Speaker: Professor Ivan Penkov, UCR
Title: TBA
Title: "Functional Calculi for Noncommuting Matrices"

Abstract: The talk outlines recent work with A. McIntosh and J. Picton-Warlow on defining a functional calculus for an $n$-tuple of matrices or bounded linear operators. It is not assumed that the matrices $A_1, \ldots, A_n$ commute with each other. One obtains functions $\mathcal{F}(A_1, \ldots, A_n)$ of $(A_1, \ldots, A_n)$ with $\mathcal{F}$ Monogenic (in the sense of Clifford analysis) in a neighborhood of the "joint spectrum" of $(A_1, \ldots, A_n)$. The idea may be extended to an $n$-tuple $(A_1, \ldots, A_n)$ of operators of type $w$ and to Feynman's operational calculus.
University of California, Riverside
Department of Mathematics
Calendar of Events
Winter 2002
Week of May 6 - May 10, 2002

Monday
May 6  
4:10-6:00 pm  Surge 275  
Seminar:  CATEGORY THEORY  
Speaker:  James Dolan

Tuesday
May 7  
2:10-3:30 pm  Surge 275  
Seminar:  QUANTUM GRAVITY  
Speaker:  Professor John Baez, UCR  
Title:  Categorified Gauge Theory

3:40-4:30 pm  Surge 268  
Seminar:  FUNCTIONAL ANALYSIS  
Speaker:  Professor John Baez, UCR  
Title:  The Octonions: An Overview (Cont'd)

Wednesday
May 8  
4:10-5:00 pm  Surge 268  
Seminar:  MATHEMATICS COLLOQUIUM  
Speaker:  Professor Greg Lewicki, Jagiellonian University, Krakow, Poland  
Title:  Maximal Symmetric Spaces

Thursday
May 9  
2:10-3:30 pm  Surge 275  
Seminar:  QUANTUM GRAVITY  
Speaker:  Professor John Baez, UCR  
Title:  Categorified Gauge Theory

3:40-5:00 pm  Surge 268  
Seminar:  MATHEMATICAL PHYSICS AND DYNAMICAL SYSTEMS  
Speaker:  Professor Miquel Tierz, Universite Paris XIII, Orsay  
Title:  Minimal Extension of the Classical Moment Problem & Its Physical Applications

4:00-5:30 pm  Surge 275  
Seminar:  ALGEBRAIC GEOMETRY  
Speaker:  Professor Christopher Hacon, UCR  
Title:  Briancon-Skoda Theorems (Cont'd)

Friday
May 10  
11:10-12:00 pm  Surge 268  
Seminar:  DIFFERENTIAL GEOMETRY  
Speaker:  Professor Zhuang-dan Guan, UCR  
Title:  Legendre Transform, Geodesic Stability and Calabi Flow II
3:10-4:00 pm  Surge 275
Seminar: COMMUTATIVE ALGEBRA
Speaker: TBA
Title: TBA

3:10-4:00 OLMH 1123
Seminar: REPRESENTATIONS & GEOMETRY
Speaker: Dimitar Grantcharov
Title: TBA
Title: "Maximal Symmetric Spaces"

Abstract: In this talk we introduce a certain subclass of finite-dimensional, real, symmetric subspaces of $l_1$, called maximal symmetric spaces. We show that these spaces play an essential role in the theory of minimal projections. In particular, applying this notion, we prove that for any $k \in \mathbb{N}$ there exists a $k$-dimensional real symmetric subspace $X^k$ maximizing the absolute projection constant $\lambda_k^2$, i.e.,

$$\lambda(X^k) = \lambda_k^2 = \sup\{\lambda(X) : X \text{ k-dim., real, symmetric}\},$$

isometric to a subspace of $L_1$ for which $L_1$ is a maximal overspace. Also we construct a sequence of real $k$-dimensional maximal symmetric spaces $Y^k$ satisfying

$$\liminf_k \lambda(Y^k, L_1)/\sqrt{k} > 1/(2 - \sqrt{2/\pi}).$$

### University of California, Riverside  
#### Department of Mathematics  
#### Calendar of Events  
#### Winter 2002  
#### Week of April 29 - May 3, 2002

| **Monday**  |  
| --- | --- |
| April 29  | 4:10-6:00 pm  
| Seminar:  | Surge 275  
| Speaker:  | CATEGORY THEORY  
| Title:  | James Dolan  

| **Tuesday**  |  
| --- | --- |
| April 30  | 2:10-3:30 pm  
| Seminar:  | Surge 275  
| Speaker:  | QUANTUM GRAVITY  
| Title:  | Professor John Baez, UCR  
| 3:40-4:30 pm  | Categorified Gauge Theory  
| Seminar:  | Surge 268  
| Speaker:  | FUNCTIONAL ANALYSIS  
| Title:  | Professor John Baez, UCR  
|  | The Octonions: An Overview  

| **Wednesday**  |  
| --- | --- |
| May 1  | 4:10-5:00 pm  
| Seminar:  | Surge 268  
| Speaker:  | MATHEMATICS COLLOQUIUM  
| Title:  | Professor George Papadopoulos, Kings College, London  
|  | Topics on Calibrations  

| **Thursday**  |  
| --- | --- |
| May 2  | 9:10-11:00 pm  
| Seminar:  | Surge 275  
| Speaker:  | TOPOLOGY  
| Title:  | Professor Xiao-Song Lin, UCR  
| 2:10-3:30 pm  | On Khovanov's Cohomology  
| Seminar:  | Surge 275  
| Speaker:  | QUANTUM GRAVITY  
| Title:  | Professor John Baez, UCR  
| 3:40-5:00 pm  | Categorified Gauge Theory  
| Seminar:  | Surge 268  
| Speaker:  | MATHEMATICAL PHYSICS AND DYNAMICAL SYSTEMS  
| Title:  | Professor Gerald W. Johnson, UCR  
| 4:00-5:30 pm  | Feynman's Operational Calculus: A Rigorous Approach  
| Seminar:  | Surge 275  
| Speaker:  | ALGEBRAIC GEOMETRY  
| Title:  | Professor Christopher Hacon, UCR  
|  | Briancon-Skoda Theorems  

- Mon, Fri: 9:00-12:00, 1:30-3:30  
- Tue, Wed, Thu: 4:00-5:30
Friday  
May 3  

11:10-12:00 pm  
Seminar: Surge 268  
Speaker: Professor Zhuang-dan Guan, UCR  
Title: Legendre Transform, Geodesic Stability and Calabi Flow  

3:10-4:00 pm  
Seminar: Surge 275  
Speaker: TBA  
Title: TBA
### University of California, Riverside
#### Department of Mathematics
#### Calendar of Events
#### Winter 2002
#### Week of April 22 - 26, 2002

<table>
<thead>
<tr>
<th><strong>Monday</strong></th>
<th>April 22</th>
<th>4:10-6:00 pm</th>
<th>Surge 275</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>CATEGORY THEORY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>James Dolan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tuesday</strong></th>
<th>April 23</th>
<th>2:10-3:30 pm</th>
<th>Surge 275</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>QUANTUM GRAVITY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td>3:40-4:30 pm</td>
<td>Surge 268</td>
<td>FUNCTIONAL ANALYSIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Professor Neil Gresky, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The Continuum Assignment Problem III (Cont'd)</td>
</tr>
</tbody>
</table>

| **Wednesday** | April 24 | No Seminar | |

<table>
<thead>
<tr>
<th><strong>Thursday</strong></th>
<th>April 25</th>
<th>9:10-11:00 pm</th>
<th>Surge 275</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOPOLOGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Richard Ries, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Connections Between Topology and Logic (Cont'd)</td>
</tr>
<tr>
<td></td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td>3:40-5:00 pm</td>
<td>Surge 268</td>
<td>Mathematical Physics and Dynamical Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Professor Gerald W. Johnson, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feynman's Operational Calculus: The Heuristic Ideas</td>
</tr>
<tr>
<td></td>
<td>4:00-5:30 pm</td>
<td>Surge 275</td>
<td>ALGEBRAIC GEOMETRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Professor Ziv Ran, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More on Volume of Big Divisors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Friday</strong></th>
<th>April 26</th>
<th>11:10-12:00 pm</th>
<th>Surge 268</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>DIFFERENTIAL GEOMETRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eric Overholser, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domains of Holomorphy</td>
</tr>
</tbody>
</table>
3:10-4:00 pm  
Seminar: Surge 275  
Commutative Algebra  
Speaker: TBA  
Title: TBA
### University of California, Riverside
### Department of Mathematics
### Calendar of Events
### Winter 2002
### Week of April 15 - 19, 2002

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Seminar</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
<td>April 15</td>
<td>4:10-6:00 pm</td>
<td>Surge 275</td>
<td>CATEGORY THEORY</td>
<td>James Dolan</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td>April 16</td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
<td>Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:40-4:30 pm</td>
<td>Surge 268</td>
<td>FUNCTIONAL ANALYSIS</td>
<td>Professor Neil Gretsky, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The Continuum Assignment Problem, II (Cont'd)</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td>April 17</td>
<td>10:00-12:00 pm</td>
<td>Surge 275</td>
<td>TOPOLOGY</td>
<td>Jianjun Tian, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Statistics of Knots (Cont'd)</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td>April 18</td>
<td>2:10-3:30 pm</td>
<td>Surge 275</td>
<td>QUANTUM GRAVITY</td>
<td>Professor John Baez, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Categorified Gauge Theory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4:00-5:30 pm</td>
<td>Surge 275</td>
<td>ALGEBRAIC GEOMETRY</td>
<td>Professor Christopher Hacon, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TBA</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td>April 19</td>
<td>11:10-12:00 pm</td>
<td>Surge 268</td>
<td>DIFFERENTIAL GEOMETRY</td>
<td>Professor Qi Zhang, UCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Refined Gradient Bounds and Solvability of Poisson and Poincar'e-Lelong Equations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3:10-4:00 pm</td>
<td>Surge 275</td>
<td>COMMUTATIVE ALGEBRA</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TBA</td>
</tr>
</tbody>
</table>
3:10-4:00 pm
Seminar: OLMH 1123
Speaker: REPRESENTATIONS AND GEOMETRY
Dimitar Grantcharov, UCR
Title: TBA
University of California, Riverside
Department of Mathematics
Calendar of Events
Winter 2002
Week of April 8 - 12, 2002

Monday
April 8 4:10-6:00 pm  Surge 275
Seminar: CATEGORY THEORY
Speaker: James Dolan

Tuesday
April 9 2:10-3:30 pm  Surge 275
Seminar: QUANTUM GRAVITY
Speaker: Professor John Baez, UCR
Title: Categorified Gauge Theory

3:40-4:30 pm  Surge 268
Seminar: FUNCTIONAL ANALYSIS
Speaker: Professor Neil Gershy, UCR
Title: The Continuum Assignment Problem, I

Wednesday
April 10 4:10-5:00 pm  Surge 268
Seminar: MATHEMATICS COLLOQUIUM
Speaker: Sergei Loktev, UC Berkeley (MSRI)
Title: A q-analog of Tensor Algebra and Verlinde Algebra

Thursday
April 11 9:10-11:00 am  Surge 275
Seminar: TOPOLOGY
Speaker: Richard Ries, UCR
Title: Connections between Topology and Logic

2:10-3:30 pm  Surge 275
Seminar: QUANTUM GRAVITY
Speaker: Professor John Baez, UCR
Title: Categorified Gauge Theory

3:40-5:00 pm  Surge 268
Seminar: MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS
Speaker: Professor Qi Zhang, UCR
Title: On the Heat Equation with Strongly Singular Potentials

4:00-5:30 pm  Surge 275
Seminar: ALGEBRAIC GEOMETRY
Speaker: Professor Ziv Ran, UCR
Title: Volume of Big Divisors
<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Seminar</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:10-12:00 pm</td>
<td>Surge 268</td>
<td>DIFFERENTIAL GEOMETRY</td>
<td>Professor Bun Wong, UCR</td>
<td>Complete Kahler Manifolds with Positive Bisectional Curvature</td>
</tr>
<tr>
<td>3:10-4:00 pm</td>
<td>Surge 275</td>
<td>COMMUTATIVE ALGEBRA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>3:10-4:00 pm</td>
<td>OLMH 1123</td>
<td>REPRESENTATIONS AND GEOMETRY</td>
<td>Dimitar Grantcharov, UCR</td>
<td>TBA</td>
</tr>
</tbody>
</table>
Mathematics Colloquium

by Professor Sergei Loktev
University of California, Berkeley (MSRI)
April 10, 2002 from 4:10-5:00 p.m.
(Tea Time starts at 3:40 p.m.)
Surge 268

Title: "A q-analog of Tensor Algebra and Verlinde Algebra"

Abstract: Suppose we have a set of cyclic finite-dimensional representations of a finite-dimensional Lie algebra. We can consider them as evaluation representations of the correspondent current Lie algebra settled in distinct points. It gives us an equivariant filtration on their tensor product.

In this talk we describe this filtration for the Lie algebra $sl_2$ in terms of Demazure reflections. The answer as a q-analog of weight multiplicities is well known in modern combinatorics as Kostka polynomials.

If we have time we apply this procedure to Verlinde algebras associated with $sl_2$. It gives us so called level restricted Kostka polynomials.
University of California, Riverside
Department of Mathematics
Calendar of Events
Winter 2002
Week of April 1 - 5, 2002

**Monday**
April 1
4:10-6:00 pm  Surge 275
Seminar:  CATEGORY THEORY
Speaker:  James Dolan

**Tuesday**
April 2
2:10- 3:30 pm  Surge 275
Seminar:  QUANTUM GRAVITY
Speaker:  Miguel Carrion-Alvarez, UCR
Title:  Introduction to Gauge Theory

3:40-4:30 pm  Surge 268
Seminar:  FUNCTIONAL ANALYSIS
Speaker:  Professor Neil Gretsky, UCR
Title:  The Continuum Assignment Problem, I

**Wednesday**
April 3
10:00-12:00 pm  Surge 275
Seminar:  TOPOLOGY
Speaker:  Professor, Xiao-Song Lin, UCR
Title:  Organizational Meeting

4:10-5:00 pm  Surge 268
Seminar:  MATHEMATICS COLLOQUIUM
Speaker:  Professor Herbert Heyer, University of Tubingen
          Tubingen, Germany
Title:  A New Look at Levy's Continuity Theorem

**Thursday**
April 4
3:40-5:00 pm  Surge 268
Seminar:  MATHEMATICAL PHYSICS & DYNAMICAL SYSTEMS
Title:  Organizational Meeting

3:40- 5:00 pm  Surge 275
Seminar:  QUANTUM GRAVITY
Speaker:  Miguel Carrion-Alvarez, UCR
Title:  Introduction to Gauge Theory

**Friday**
April 5
11:10-12:00 pm  Surge 268
Seminar:  DIFFERENTIAL GEOMETRY
Speaker:  Professor Fred Wilhelm, UCR
Title:  Organizational Meeting

3:00-4:00 pm  Watkins 1117
Seminar:  COMMUTATIVE ALGEBRA
Speaker:  TBA
Title:  TBA