

# Kavli Institute Inaugural Symposium in memory of David Schramm

December 8 - 13, 2005 Chicago, IL



<http://newviews.uchicago.edu/>

## SYMPOSIUM PROGRAM



<http://kicp.uchicago.edu/>



THE UNIVERSITY OF  
CHICAGO

<http://www.uchicago.edu/>

## **December 8, 2005 (Thursday)**

6:00 PM - 9:00 PM    Registration and Opening Reception    Plaza ballroom, East Tower

## **December 9, 2005 (Friday)**

### **Plenary Session**

Chairs: Rocky Kolb (Chicago/Fermilab) & Nicholas Pritzker (Global Hyatt Corporation)

<i>Session 1</i>	<i>Chair: Rocky Kolb</i>	<i>Crystal ballroom C, West Tower</i>
8:30 AM - 8:45 AM	Opening remarks	
8:45 AM - 9:20 AM	David Schramm's life and legacy	Lawrence M. Krauss (Case Western Reserve University)
9:20 AM - 9:55 AM	Particle Astrophysics - Progress and Prospects	Roger Blandford (KIPAC, Stanford)
9:55 AM - 10:30 AM	Coffee Break	
10:30 AM - 11:05 AM	BBN: Successes and Challenges	Gary Steigman (Ohio State University)
11:05 AM - 11:40 AM	A Dynamical Solution to the Cosmological Constant Problem	Katherine Freese (University of Michigan)
11:40 AM - 12:15 PM	Neutrinos in Astrophysics and Cosmology	Georg G. Raffelt (Max Planck Institute for Physics, Munich)
12:15 PM - 2:00 PM	Lunch	
<i>Session 2</i>	<i>Chair: Nicholas Pritzker</i>	<i>Crystal ballroom B, West Tower</i>
2:00 PM - 2:35 PM	Recent Studies of Ultra High Energy Cosmic Rays	Alan Watson (University of Leeds)
2:35 PM - 3:10 PM	Dark Matter (Theory)	Keith A. Olive (University of Minnesota)
3:10 PM - 3:40 PM	Coffee Break	
3:40 PM - 4:15 PM	Future of HO	Wendy L. Freedman (Carnegie Observatories)
4:15 PM - 4:50 PM	Solution to the Greatest Remaining Mystery About GRBs: The Nature of Short GRBs	Don Q. Lamb (University of Chicago)
6:30 PM	David N. Schramm Legacy Dinner	After Dinner Speaker, Nobel Laureate Leon Lederman

## **December 10, 2005 (Saturday)**

### **Plenary Session** (*Crystal ballroom C, West Tower*)

Chair: Jeff Harvey (University of Chicago)

9:00 AM - 9:35 AM	Relaxing to Three Dimensions	Lisa Randall (Harvard University)
9:35 AM - 10:10 AM	Inflation and the origin of structure	David Wands (University of Portsmouth)
10:10 AM - 10:40 AM	Coffee Break/ Poster viewing	
10:40 AM - 11:15 AM	Gravitational Waves	Deirdre Shoemaker (Penn State)
11:15 AM - 11:50 AM	Cosmic superstrings	Ed Copeland (University of Nottingham)
11:50 AM - 12:25 PM	Weak Gravitational Lensing	Gary Bernstein (University of Pennsylvania)
12:25 PM - 2:00 PM	Lunch	
2:00 PM - 3:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
3:45 PM - 5:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower

### **Parallel Session: Dark Energy Experiment/Theory**

*December 10, 2005 (Crystal ballroom A, West Tower)*

Organizing Chairs: Rachel Bean (Cornell University) & Lloyd Knox (UC Davis)

#### **Parallel Session Talks (Dark Energy Experiment/Theory)**

<i>Session 1</i>	<i>Chair: Rachel Bean (Cornell University)</i>	<i>Crystal ballroom A, West Tower</i>
2:00 PM - 2:15 PM	Expansion History from Supernovae Near and Far	Adam Riess (STSCI)
2:15 PM - 2:30 PM	Decelerating and Dustfree: Targeting SNe in Very High Redshift Galaxy Clusters	Marek P. Kowalski (LBNL)
2:30 PM - 2:45 PM	Searching in the Light for Dark Energy Density Time-variation	Jason Dick (University of California Davis)
2:45 PM - 3:00 PM	Large scale structure induced fluctuations in supernova surveys	Lam Hui (Columbia University)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Adam Riess (STSCI)</i>	<i>Crystal ballroom A, West Tower</i>

3:45 PM - 4:00 PM	Gravitational-wave standard sirens	Daniel Holz (Los Alamos National Lab, University of Chicago)
4:00 PM - 4:15 PM	A Low Quadrupole from Inhomogenous Dark Energy	Christopher Gordon (University of Chicago)
4:15 PM - 4:30 PM	Future ISW Constraints on Dark Energy Clustering	Ryan Scranton (University of Pittsburgh)
4:30 PM - 4:45 PM	Differentiating Dark Energy from Modified Gravity	Arthur Lue (University of Texas at San Antonio)
4:45 PM - 5:00 PM	Superhorizon perturbations and cosmic acceleration	Christopher M. Hirata (Institute for Advanced Study)

### **Parallel Session Posters (Dark Energy Experiment/Theory)**

1.	Cluster finding in mm-wave SZ data: Challenges and non-idealities	Tom Crawford (University of Chicago, KICP)
2.	Investigating dark energy experiments with principal components	Levon Pogosian (Department of Physics, Syracuse University)
3.	Effects of Inhomogeneities on Cosmic Expansion	James N. Fry (University of Florida)
4.	Cosmological Backreaction: the Mystery and the Myth	Niayesh Afshordi (ITC, Harvard University)
5.	Generalizing the Generalized Chaplygin Gas	Anjan A. Sen (Dept. Of Physics and Astronomy, Vanderbilt University)
6.	Likelihood Methods for Galaxy Cluster Surveys	Gilbert Holder (McGill University)
7.	An Anthrocentric Universe?	Albert Stebbins (Fermilab)

### **Parallel Session: Large Scale Structure/Lensing**

*December 10, 2005 (Crystal ballroom B, West Tower)*

Organizing Chairs: Bhuvnesh Jain (University of Pennsylvania) & Risa Wechsler (KICP, University of Chicago)

### **Parallel Session Talks (Large Scale Structure/Lensing)**

<i>Session 1</i>	<i>Chair: Bhuvnesh Jain (University of Pennsylvania)</i>	<i>Crystal ballroom B, West Tower</i>
2:00 PM - 2:15 PM	Density profiles of galaxy clusters using strong + weak lensing	Neal Dalal (CITA)
2:15 PM - 2:35 PM	Cluster Strong Lensing	Joseph F. Hennawi (UC Berkeley)
2:35 PM - 2:50 PM	Lensing Signatures of CDM Substructures	Eduardo Rozo (University of Chicago)
2:50 PM - 3:05 PM	Lensing Without Shear: the Power of Cosmic Magnification	Pengjie Zhang (Shanghai Observatory)
3:05 PM - 3:45 PM	Coffee Break/ Poster viewing	

<i>Session 2</i>	<i>Chair: Risa Wechsler (KICP, University of Chicago)</i>	<i>Crystal ballroom B, West Tower</i>
3:45 PM - 4:05 PM	A STEP towards high precision cosmology from weak gravitational lensing	Catherine E. Heymans (UBC)
4:05 PM - 4:25 PM	Calbration of Cluster Masses with Weak Lensing in the SDSS	Erin Sheldon (New York University)
4:25 PM - 4:45 PM	Breaking the Degeneracies between Cosmology and Galaxy Bias	Zheng Zheng (Institute for Advanced Study)
4:45 PM - 5:00 PM	The Clustering of Photometric Luminous Red Galaxies and their cosmological implications	Nikhil Padmanabhan (Princeton University)

### **Parallel Session Posters (Large Scale Structure/Lensing)**

1. Large Scale Reionization Katharina Kohler (University of Colorado and Fermi Lab)
2. Planning Weak Lensing Surveys Bhuvnesh Jain (University of Pennsylvania)
3. Cosmology with Galaxy Correlations from Photometric Redshift Surveys Hu Zhan (University of California at Davis)
4. Constraining cosmological parameters with the galaxy power spectrum and bispectrum Emiliano Sefusatti (Fermilab)
5. Method of Estimating Weak Lens Shear to 1% Accuracy Reiko Nakajima (University of Pennsylvania)
6. N-body simulations of alternate gravity models Hans F. Stabenau (University of Pennsylvania)
7. Effect of Photo-z on Baryon Oscillations Zhaoming Ma (University of Chicago)
8. Quantifying the Large-Scale Structure of the Universe Joerg M. Colberg (Carnegie-Mellon University)
9. The Projected Radial Distribution of Galactic Satellites Jacqueline Chen (University of Chicago, KICP)
10. Modeling Luminosity-Dependent Clustering from  $z \sim 5$  to the Present Charlie Conroy (University of Chicago)

### **Parallel Session: High Energy Particles**

*December 10, 2005 (Crystal ballroom C, West Tower)*

Organizing Chairs: Teresa Montaruli (University of Wisconsin - Madison) & Martin Lemoine (Institut d'Astrophysique de Paris)

### **Parallel Session Talks (High Energy Particles)**

<i>Session 1</i>	<i>Chair: Teresa Montaruli (University of Wisconsin - Madison)</i>	<i>Crystal ballroom C, West Tower</i>
------------------	--	---------------------------------------

2:00 PM - 2:20 PM	Recent H.E.S.S. Results in TeV Gamma-Ray Astronomy	Gavin Rowell (Max Planck Institut fuer Kernphysik)
2:20 PM - 2:40 PM	Recent Results from The High Resolution Fly's Eye (HiRes)	John N. Matthews (University of Utah)
2:40 PM - 3:00 PM	Combined analysis of the spectrum and anisotropies of UHECRs	Daniel De Marco (Bartol Research Institute, University of Delaware)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Teresa Montaruli (University of Wisconsin - Madison)</i>	<i>Crystal ballroom C, West Tower</i>
3:45 PM - 4:05 PM	UHE nuclei propagation and the interpretation of ankle	Denis Allard (University of Chicago)
4:05 PM - 4:25 PM	High Energy Neutrino Observatories at the South Pole	David J. Boersma (UW Madison)
4:25 PM - 4:45 PM	Mediterranean Neutrino Telescopes	Juande D. Zornoza (IFIC - UW-Madison)
4:45 PM - 5:05 PM	Revealing the supernova--gamma-ray burst connection with TeV neutrinos	John Beacom (Ohio State University)

### **Parallel Session Posters (High Energy Particles)**

1. The First Scientific Results from the Pierre Auger Observatory  
Tokonatsu Yamamoto (Enrico Fermi Institute, University of Chicago)
2. Cosmogenic neutrinos from ultra high energy cosmic rays  
Nicolas G. Busca (University of Chicago)
3. Cosmic Accretion Shocks: Energetics, Evolution and Effect of Environment  
Vasiliki Pavlidou (KICP, University of Chicago)
4. Constraining Structure Formation Cosmic Rays  
Tijana Prodanovic (University of Illinois at Urbana-Champaign)
5. Probing Exotic Physics With Ultra-High Energy Neutrinos  
Dan Hooper (FNAL)
6. Precision Measurements of the Composition of Galactic Cosmic Rays  
Jojo Boyle (University of Chicago, EFI/KICP)

## **December 11, 2005 (Sunday)**

### **Plenary Session** (*Crystal ballroom B, West Tower*)

Chair: Wayne Hu (University of Chicago)

9:00 AM - 9:35 AM	Dark Energy, or Worse?	Sean Carroll (University of Chicago)
9:35 AM - 10:10 AM	Dark Energy from Supernova Surveys	Isobel Hook (University of Oxford)
10:10 AM - 10:40 AM	Coffee Break/ Poster viewing	
10:40 AM - 11:15 AM	Shedding Light on Dark Energy	Josh Frieman (University of Chicago and Fermilab)
11:15 AM - 11:50 AM	Neutrino Experiments	Janet Conrad (Columbia University)
11:50 AM - 12:25 PM	From the Knee to the toes: the Challenge of Cosmic Ray Composition	Joerg R. Hoerandel (University of Karlsruhe)
12:25 PM - 2:00 PM	Lunch	
2:00 PM - 3:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
3:45 PM - 5:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower
6:15 PM	Symposium Banquet	at the Adler Planetarium & Astronomy Museum

### **Parallel Session: DM Theory/Experiment**

*December 11, 2005 (Crystal ballroom A, West Tower)*

Organizing Chairs: Geraldine Servant (CEA Saclay) & Michael Dragowsky (Case Western Reserve University)

#### **Parallel Session Talks (DM Theory/Experiment)**

<i>Session 1</i>	<i>Chair: Geraldine Servant (CEA Saclay)</i>	<i>Crystal ballroom A, West Tower</i>
2:00 PM - 2:15 PM	Sterile Neutrino Dark Matter	Kevork Abazajian (Los Alamos National Laboratory)
2:15 PM - 2:30 PM	Measuring Dark Matter Properties at High-Energy Colliders	Edward A. Baltz (KIPAC)
2:30 PM - 2:45 PM	Supersymmetric Dark Matter and the Cosmic Lithium Problems	Karsten Jedamzik (LPTA-CNRS, University of Montpellier)
2:45 PM - 3:00 PM	Probing the Dark Matter Particle Spectrum with the Dark Matter Power Spectrum	Kris Sigurdson (Institute for Advanced Study)

3:00 PM - 3:15 PM	Constraints on Galactic Positron Production Models	Hasan Yuksel (Ohio State University)
3:15 PM - 4:00 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Michael Dragowsky (Case Western Reserve University)</i>	<i>Crystal ballroom A, West Tower</i>
4:00 PM - 4:15 PM	The first WIMPy halos	Anne M. Green (University of Nottingham)
4:15 PM - 4:30 PM	Event Discrimination Using ZIP Detectors	Long H. Duong (University of Minnesota)
4:30 PM - 4:50 PM	Results from the Axion Dark-Matter Experiment (ADMX)	Darin Kinion (LLNL)
4:50 PM - 5:05 PM	Indirect Dark Matter Search with Antideuterons: Progress and Future Prospects of GAPS	Jason E. Koglin (Columbia Astrophysics Laboratory)
6:15 PM	Symposium Banquet	at the Adler Planetarium & Astronomy Museum

### **Parallel Session Posters (DM Theory/Experiment)**

- |   |   |
|---|---|
| 1. Clustering of Primordial Black Holes                           | James R. Chisholm (University of Florida)       |
| 2. Gamma ray background from dark matter annihilation in spikes   | Eun-Joo Ahn (University of Chicago)             |
| 3. Three-point correlation function from cosmological simulations | Felipe A. Marin Perucci (University of Chicago) |
| 4. The SuperCDMS dark matter search                               | Reuben W. Ogburn (Stanford University)          |
| 5. Dark Matter at $10^{-45}$ cm <sup>2</sup>                      | Jeffrey P. Filippini (UC Berkeley)              |
| 6. Long-Wavelength Modes of Cosmological Scalar Fields            | Marcin Jankiewicz (Vanderbilt University)       |

### **Parallel Session: CMB Theory/Experiment**

*December 11, 2005 (Crystal ballroom B, West Tower)*

Organizing Chairs: Suzanne Staggs (Princeton University) & Andrew Jaffe (Imperial College)

### **Parallel Session Talks (CMB Theory/Experiment)**

<i>Session 1</i>	<i>Chair: Lloyd Knox (UC Davis)</i>	<i>Crystal ballroom B, West Tower</i>
2:00 PM - 2:15 PM	Early Reionization and Dark Matter Physics	Manoj Kaplinghat (University of California, Irvine)
2:15 PM - 2:30 PM	The Largest Scale Perturbations in the Universe and The Physics of the Beginning	Benjamin D. Wandelt (University of Illinois at Urbana-Champaign)



2:30 PM - 2:45 PM	Gravitational Waves and the Microwave Background	Arthur Kosowsky (University of Pittsburgh)
2:45 PM - 3:00 PM	Mysteries of the large-angle microwave sky	Dragan Huterer (KICP, University of Chicago)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Benjamin Wandelt (University of Illinois at Urbana-Champaign)</i>	<i>Crystal ballroom B, West Tower</i>
3:45 PM - 4:00 PM	The Atacama Cosmology Telescope Project	Joseph W. Fowler (Princeton University)
4:00 PM - 4:15 PM	Preliminary Results from the SZA	Amber Miller (Columbia University)
4:15 PM - 4:30 PM	The Millimeter-wave Bolometric Interferometer	Peter O. Hyland (University of Wisconsin - Madison)
4:30 PM - 4:45 PM	The tension in Standard Big Bang Nucleosynthesis:	David Tytler (UC San Diego)
6:15 PM	Symposium Banquet	at the Adler Planetarium & Astronomy Museum

### **Parallel Session Posters (CMB Theory/Experiment)**

1. Parameterizing the Power Spectrum: Beyond the Truncated Taylor Expansion      Kenji Kadota (Fermilab)
2. Magnetic Field Generation by the Cosmological Recombination      Kiyotomo Ichiki (National Astronomical Observatory, JAPAN / KICP)
3. A Characterization of Faint Radio Point Sources at Centimeter Wavelengths      Kim Coble (Chicago State University)
4. In Search of B-modes: Deconvolution Map-Making for CMB Polarization Observations      Charmaine Armitage (University of Illinois at Urbana-Champaign)
5. Hot and Cold Spot Tests for non-Gaussianity in the WMAP CMB Data      David L. Larson (University of Illinois at Urbana-Champaign)
6. Fast, Accurate and Robust Power Spectrum Computation      Chad Fendt (University of Illinois at Urbana Champaign)
7. Limits on Defects Formation in Hybrid Inflationary Models with Three Year Wilkinson Microwave Anisotropy Probe (WMAP) Observations      Aurelien A. Fraisse (Princeton University)

### **Parallel Session: Gamma Ray Bursts**

*December 11, 2005 (Crystal ballroom C, West Tower)*

Organizing Chairs: Rosalba Perna (University of Colorado) & Edo Berger (Carnegie Observatories)

### **Parallel Session Talks (Gamma Ray Bursts)**

<i>Session 1</i>	<i>Chair: Rosalba Perna (University of Colorado)</i>	<i>Crystal ballroom C, West Tower</i>
2:00 PM - 2:15 PM	NS-NS versus BH-NS binaries as short GRB progenitors	Krzysztof Belczynski (New Mexico State University)
2:15 PM - 2:30 PM	Binary models for short gamma ray bursts	Richard O'Shaughnessy (Northwestern University)
2:30 PM - 2:45 PM	Gamma-Ray Bursts as standard candles	Davide Lazzati (JILA - University of Colorado)
2:45 PM - 3:00 PM	Gamma-ray burst early afterglows	Bing Zhang (University of Nevada Las Vegas)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Edo Berger (Carnegie Observatories)</i>	<i>Crystal ballroom C, West Tower</i>
3:45 PM - 4:00 PM	Recent Results from the Swift X-ray Telescope: Observations of Early Gamma Ray Burst Afterglows	Abe D. Falcone (Pennsylvania State University)
4:00 PM - 4:15 PM	Discovery and Identification of the Very High Redshift Afterglow of GRB 050904 and Future Prospects	Dan Reichart (University of North Carolina)
4:15 PM - 4:30 PM	New Views of Compact Object Mergers via Short Gamma-Ray Bursts	Derek B. Fox (Penn State University)
4:30 PM - 4:45 PM	A Broadband Perspective on the GRB-SN Connection	Alicia M. Soderberg (Caltech)
4:45 PM - 5:00 PM	Studying the ISM of Young Galaxies Hosting Gamma-Ray Bursts	Ryan J. Foley (UC Berkeley)
6:15 PM	Symposium Banquet	at the Adler Planetarium & Astronomy Museum

### **Parallel Session Posters (Gamma Ray Bursts)**

1. Neutrinos from Thick Gamma-ray Burst Accretion Disks  
Christian Y. Cardall (Physics Division, Oak Ridge National Laboratory)
2. Probing Massive Star Formation with MeV Neutrinos and Gamma Rays  
Louie Strigari (UC Irvine)

## December 12, 2005 (Monday)

### Plenary Session (*Crystal ballroom B, West Tower*)

Chair: Nick Gnedin (Fermilab)

9:00 AM - 9:35 AM	Galaxy Formation: The Big Picture	Julianne J. Dalcanton (University of Washington)
9:35 AM - 10:10 AM	Galaxy Clusters and Cosmology	Michael D. Gladders (Carnegie Observatories)
10:10 AM - 10:40 AM	Coffee Break/ Poster viewing	
10:40 AM - 11:15 AM	Interpreting Large Scale Structure	David H. Weinberg (Ohio State University)
11:15 AM - 11:50 AM	Reionization/ Dark Ages	Xiaohui Fan (University of Arizona)
11:50 AM - 12:25 PM	Future Prospect for CMB Measurements	Sarah Church (Stanford University)
12:25 PM - 2:00 PM	Lunch	
2:00 PM - 3:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
3:45 PM - 5:00 PM	Parallel Sessions Talks	Crystal ballrooms (A, B, C) West Tower
7:00 PM	Public Panel	at the Harris Theater in Chicago's Millennium Park, 205 E. Randolph

### Parallel Session: Gravity/Branes/Strings

*December 12, 2005 (Crystal ballroom A, West Tower)*

Organizing Chairs: Richard Easther (Yale University) & Ruth Gregory (University of Durham)

### Parallel Session Talks (Gravity/Branes/Strings)

<i>Session 1</i>	<i>Chair: Richard Easther (Yale University)</i>	<i>Crystal ballroom A, West Tower</i>
2:00 PM - 2:20 PM	An effective theory of initial conditions in inflation	Hael Collins (University of Massachusetts, Amherst)
2:20 PM - 2:40 PM	Heavy cosmic strings	Arttu Rajantie (Imperial College London)
2:40 PM - 3:00 PM	String Pair Production in a Time-Dependent Gravitational Field	Daniel H. Wesley (Princeton University)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	

<i>Session 2</i>	<i>Chair: Ruth Gregory (University of Durham)</i>	<i>Crystal ballroom A, West Tower</i>
3:45 PM - 4:05 PM	Constraining Inverse Curvature Gravity with Supernovae	Jose Santiago (Fermilab)
4:05 PM - 4:25 PM	Resonant modes in brane-world inflation	Andrew Mennim (University of Portsmouth)
4:25 PM - 4:45 PM	Perturbations in a Regular Bouncing Universe	Ghazal Geshnizjani (UW-Madison)
4:45 PM - 5:05 PM	Enhanced gravitational scattering from large extra dimensions	Federico Piazza (ICG Portsmouth UK)
7:00 PM	Public Panel	at the Harris Theater in Chicago's Millennium Park, 205 E. Randolph

### **Parallel Session Posters (Gravity/Branes/Strings)**

1. Friedman's equations and the apparent horizon (from wood to marble). Antonio J. Segui (Universidad de Zaragoza)
2. Evolution of Dark Matter, Dark Energy, and Dark Radiation in Brane-World Cosmology Grant J. Mathews (University of Notre Dame)
3. Short and Long Distance Effects in Cosmology and Dark Energy Emil Mottola (Los Alamos National Laboratory)
4. Direct detection of the inflationary gravitational-wave background Tristan L. Smith (Caltech)

### **Parallel Session: Clusters and Galaxy Formation**

*December 12, 2005 (Crystal ballroom B, West Tower)*

Organizing Chairs: Hsiao-Wen Chen (University of Chicago) & Fabio Governato (UW-INAF)

### **Parallel Session Talks (Clusters and Galaxy Formation)**

<i>Session 1</i>	<i>Chair: Hsiao-Wen Chen (University of Chicago)</i>	<i>Crystal ballroom B, West Tower</i>
2:00 PM - 2:20 PM	The Role of Black Holes in Galaxy Evolution	Tiziana Di Matteo (Carnegie Mellon University)
2:20 PM - 2:40 PM	Galaxy clusters and environments at redshift one-tenth	David W. Hogg (NYU)
2:40 PM - 3:00 PM	Galaxies at $z=2-3$	Alice Shapley (Princeton University)
3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: Fabio Governato (UW-INAF)</i>	<i>Crystal ballroom B, West Tower</i>
3:45 PM - 4:00 PM	Cold Outflows from Ultraluminous Galaxies	Crystal Martin (UC Santa Barbara)

4:00 PM - 4:15 PM	The Evolution of Galaxy Morphology	Marc Postman (Space Telescope Science Institute)
4:15 PM - 4:30 PM	Central and Satellite Galaxies in Groups and Clusters	Asantha Cooray (UC Irvine)
4:30 PM - 4:45 PM	Modeling Cosmic Reionization	Nick Gnedin (Fermilab)
4:45 PM - 5:00 PM	The Formation of the First Stars	Greg Bryan (Columbia University)
7:00 PM	Public Panel	at the Harris Theater in Chicago's Millennium Park, 205 E. Randolph

### **Parallel Session Posters (Clusters and Galaxy Formation)**

1. Formation of Supermassive Black Holes      Robyn Levine (University of Colorado & Fermilab)
2. Environmental Dependence of Halo Concentration and Occupation      Risa Wechsler (KICP, University of Chicago)
3. Ly-alpha radiative transfer in cosmological simulations      Argyro (Iro) Tasitsiomi (U Chicago/ Princeton U)
4. Testing models of supermassive black hole formation with gravity wave experiments      Savvas M. Koushiappas (Los Alamos National Laboratory)
5. Cluster ellipticities: influence of mean density and mass fluctuation amplitude      Shirley Ho (Princeton University)
6. Measuring the Effect of Baryons on the Non-Linear Power Spectrum      Douglas H. Rudd (University of Chicago)
7. Ellipsoidal Collapse and Dark Halo Shapes      Graziano Rossi (University of Pennsylvania)

### **Parallel Session: Early Universe**

*December 12, 2005 (Crystal ballroom C, West Tower)*

Organizing Chairs: Karsten Jedamzik (LPTA-CNRS, University of Montpellier) & John Beacom (Ohio State University)

### **Parallel Session Talks (Early Universe)**

<i>Session 1</i>	<i>Chair: Karsten Jedamzik (LPTA-CNRS, University of Montpellier)</i>	<i>Crystal ballroom C, West Tower</i>
2:00 PM - 2:15 PM	Nonthermal instant leptogenesis	Eun-Joo Ahn (University of Chicago)
2:15 PM - 2:30 PM	Probing the early universe with gravitational waves	Latham A. Boyle (Princeton University)
2:30 PM - 2:45 PM	Towards a Unique Inflaton Candidate in MSSM	Daniel J. H. Chung (University of Wisconsin - Madison)
2:45 PM - 3:00 PM	Effects of primordial helicity and detection possibilities	Tina Kahniashvili (Kansas State University)

3:00 PM - 3:45 PM	Coffee Break/ Poster viewing	
<i>Session 2</i>	<i>Chair: John Beacom (Ohio State University)</i>	<i>Crystal ballroom C, West Tower</i>
3:45 PM - 4:00 PM	Gravity Waves from Preheating	Eugene A. Lim (Yale University)
4:00 PM - 4:15 PM	Parameter Estimation, Slow Roll and the Inflationary Potential	Hiranya V. Peiris (Kavli Institute for Cosmological Physics)
4:15 PM - 4:30 PM	Leptogenesis	Michael Pluemacher (Max-Planck-Institute for Physics)
4:30 PM - 4:45 PM	Gravitational Waves from First Order Phase Transitions	Geraldine Servant (CEA Saclay)
4:45 PM - 5:00 PM	superWIMP dark matter	Fumihiro Takayama (Cornell University)
7:00 PM	Public Panel	at the Harris Theater in Chicago's Millennium Park, 205 E. Randolph

### **Parallel Session Posters (Early Universe)**

1. Reconstruction of Primordial Scalar Potential Using Temperature and Polarization Maps  
Amit Pratap Yadav (University of Illinois at Urbana-Champaign)
2. Curvature Perturbations from Broken Symmetries  
Alberto Vallinotto (University of Chicago)
3. Density fluctuations of an effectively single field inflation in a multi-field configuration  
Masahide Yamaguchi (Aoyama Gakuin University)
4. Variation of fundamental constants from Big Bang to atomic clocks  
Victor Flambaum (Argonne National Lab., University of New South Wales)

## **December 13, 2005 (Tuesday)**

### **Plenary Session** (*Crystal ballroom B, West Tower*)

Chair: Scott Dodelson (University of Chicago and Fermilab)

9:00 AM - 9:35 AM	Dark Matter Detection	Juan I. Collar (University of Chicago)
9:35 AM - 10:10 AM	The TeV Gamma-ray Universe	Trevor C. Weekes (Harvard-Smithsonian CfA)
10:10 AM - 10:40 AM	Coffee Break	
10:40 AM - 11:15 AM	21cm Observations of the Epoch of Reionization	Jacqueline N. Hewitt (MIT Kavli Institute)
11:15 AM - 11:50 AM	Summary of Symposium	Rocky Kolb (Chicago/Fermilab)