



## PHYSICS & ASTRONOMY WEEKLY CALENDAR

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### WEEKLY CALENDAR

November 3, 2008

### Department Colloquium

"Quantum Nature of the Big Bang in Simple Models"

3:40 PM, November 6, 2008  
109 Nicholson Hall

**Abhay Ashtekar**  
Pennsylvania State University  
Host: Jorge Pullin

• Refreshments served at 3:15 PM in 201 Nicholson Hall •

According to general relativity, space-time ends at singularities and classical physics just stops. In particular, the big bang is regarded as The Beginning. However, general relativity is incomplete because it ignores quantum effects. Through simple models, I will illustrate how the quantum nature of space-time geometry resolves the big bang singularity. Quantum physics does not stop there. Indeed, quantum space-times can be vastly larger than what general relativity had us believe, with unforeseen physical effects in the deep Planck regime.

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#### Reminder:

- There will be a Faculty meeting on Tuesday, November 4, 2008 at 3:40 p.m. in Room 109 Nicholson Hall.
  - Tax treaty benefits expire December 31, 2008. To continue these for 2009 attend a tax treaty workshop on Wednesday, November 12 or Thursday, November 13 between 8:30 a.m. and 4:00 p.m. in the lobby of Thomas Boyd Hall. Bring your passport, Visa, I-94 card, I-20 or DS2019. It will take about 20 minutes to fill out the forms.
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