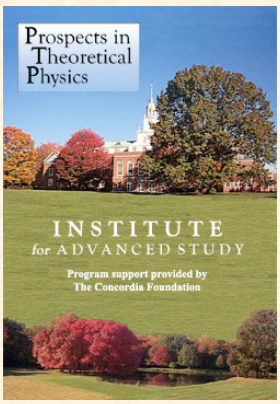

PiTP 2009 Program Summary

First, **thank you** to the staff.

Susan Higgins

Michelle Sage

James Stephens, Prentice Brisbal, and the rest of the IAS SNS computing staff.

Dario (AV expert): watch for videos of lectures to appear on website.

Carla

Thank you to the lecturers.

Kevin Bowers (LANL & DE Shaw)
Bill Dorland (UMd)
Brian Kernighan (PU)
Mike Norman (UCSD)
Frans Pretorius (PU)
Derek Richardson (UMd)
Anatoly Spitkovsky (PU)
Volker Springel (MPIA)
Scott Tremaine (IAS)

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Anatoly Spitkovsky (PU)
Volker Springel (MPIA)
Scott Tremaine (IAS)

Especially to Scott for all his additional work as the local organizer from the IAS.

Thank you to Peter Teuben.

Thank you to Peter Teuben.

Thank you to the participants.

115 registered participants (plus local gate-crashers)

100 graduate students
13 postdocs
2 faculty
45 non-US participants from 14 countries

The Program.

32 hours of lectures.
10 hours of Q&A sessions.
6 hours of tutorials and special sessions.
1 program dinner.
1 pool party.

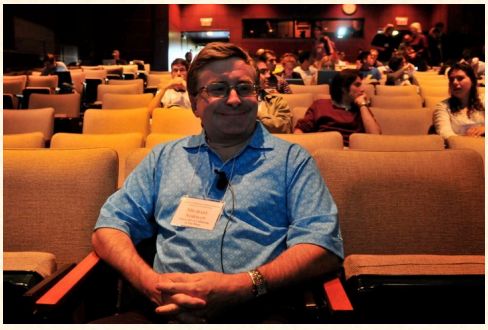
What we hoped you would learn.

- Numerical algorithms at the heart of most state-of-the-art computational astrophysics codes.
- Practical aspects of computation, such as best-practices for software development and visualization.
- What are the hot topics in areas outside your application domain.
- What your colleagues at other institutions are working on.

We hoped you would become "numerically literate", by learning how to install, compile, run, and modify numerical methods for a wide range of problems, from N-body dynamics to general relativity.

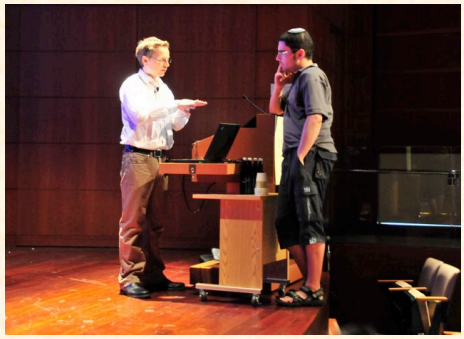
Some Quotable Quotes

"Where's the beef?" *Mike Norman*

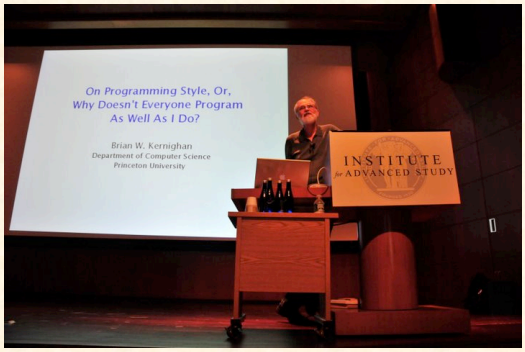


In other words, when does insight come from computation?

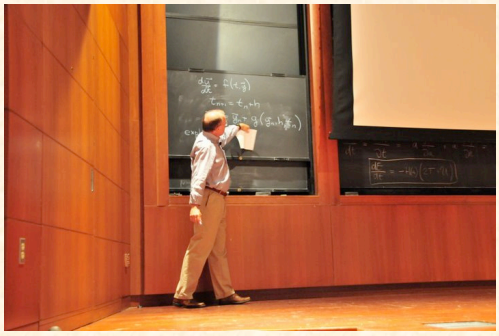
"We could run a simulation with 200 billion particles, but what would we do with the data?", *Volker Springel*



"Don't be too smart. Don't be too stupid."
Brian Kernighan



"Minimizing the truncation error is not always the right thing to do", *Scott Tremaine*



(This is one difference between numerical analysis and computational science)

"A revolution is coming: 20,000x speedup by 2020."
Bill Dorland

"This problem has been around a long time, but only recently has progress been possible",
Anatoly Spitkovsky

"Only 2 out of about 100 proposed algorithms turned out to be stable", *Frans Pretorius*

"Don't use global variables", *Kered Juran*

"Petaflops are here", *Kevin Bowers*

What was not covered.

Detailed results of applications. We tried to make this a school on computation, and not a scientific conference.

Methods used in lots of topics, such as

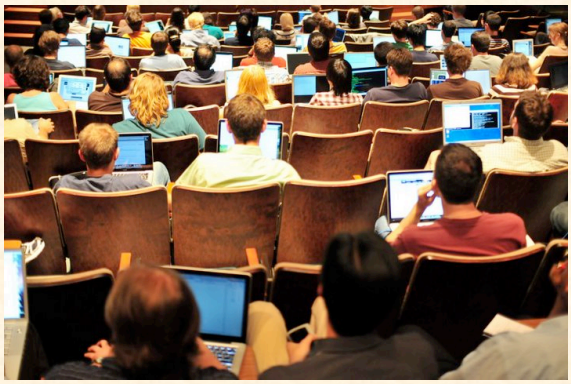
- Stellar structure and evolution.
- Stellar atmospheres.
- Chemical and nuclear reaction networks.
- Etc.

But probably the most important:

- Data analysis and modeling.

Some scenes from the program.

We hope you listened carefully during the lectures



That you had time to think about what was presented.

That you took the opportunity to ask questions and learn from others.

That you were challenged, and had to work hard.

Until you had that “Eureka!” moment.

What now?

First, a practical matter.

Please move *all* your data from IAS machines *before* leaving. Your accounts cannot be accessed remotely.

And after you get home?

- We hope you share what you have learned with your colleagues at your home institution.
- Read the method papers, finish the homework, try to understand what was presented if it is still fuzzy.
- Apply what you’ve learned to your own research.
- Go beyond what was presented here.

So, have safe travels home…

Go forth and multiply (to double precision)…

The End