

A photograph of a server room. The room is filled with rows of server racks, each with numerous green and yellow indicator lights. The racks are arranged in a perspective that recedes into the distance. Overhead, there are long fluorescent light fixtures and a complex network of pipes and cables. The overall atmosphere is technical and industrial.

Introduction for the OSG-AHM @ Northwestern

OSG Council Meeting– 10/23/14
Kristian Hahn

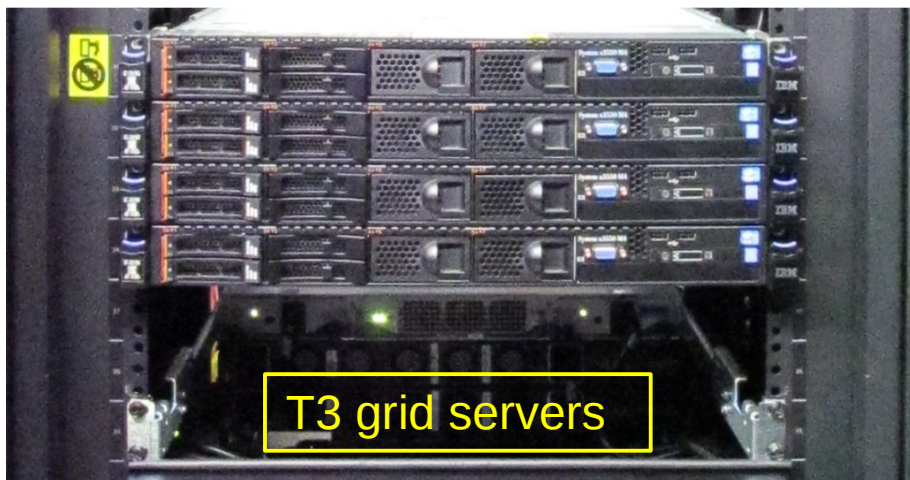
Kristian Hahn

- **PhD: UPenn, 2006** (CDF, with N. Lockyer)
 - Technical work: Level-2 Trigger Upgrade
- **Postdoc: MIT, until 2012** (CMS)
 - Technical work :
 - Tracker (with S. Nahn)
 - Involved in many Tk DAQ commissioning activities
 - Established the CDAQ slice at the TIF
 - Tk-online software package management
 - Computing (with C. Paus)
 - Level-3 co-coordinator for Tier-1 reprocessing
 - Led many of the first reprocessing campaigns
 - Commissioning of Glide-ins



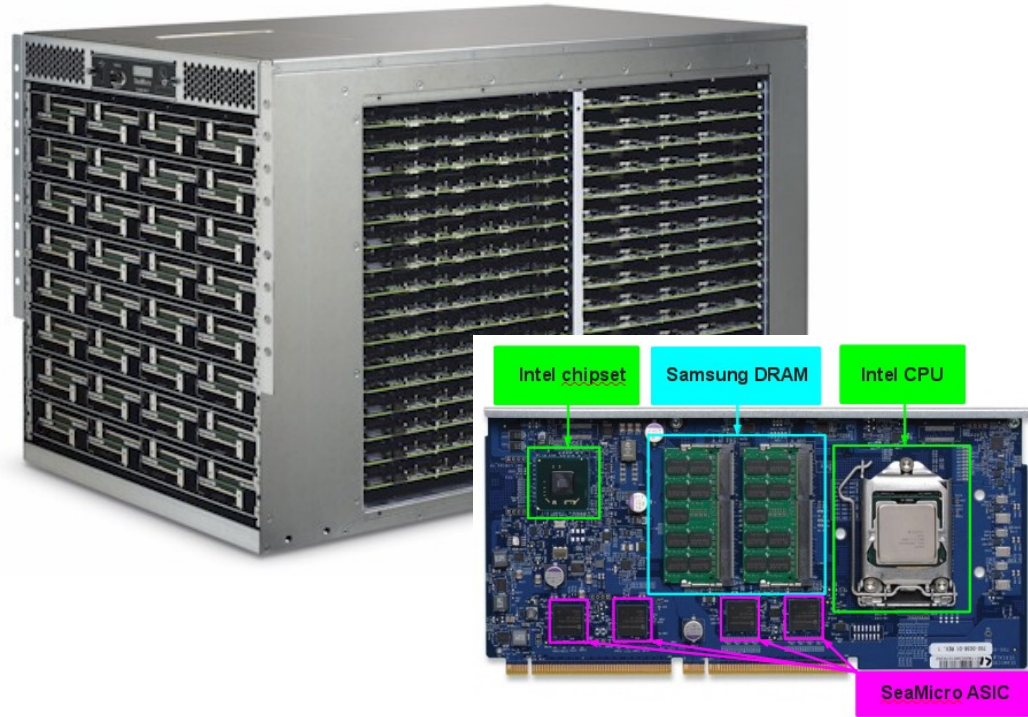
Current Computing Interests

- Established the Northwestern Tier-3
 - 250 TB
 - 224 exclusive cores, >8K opportunistic (in progress)
 - Heavily used by HEP, possibly by Astro (LSST) soon



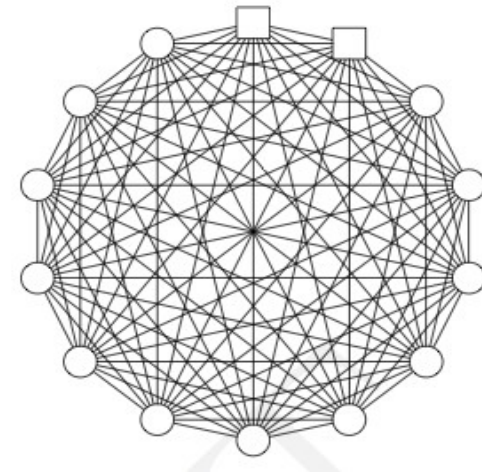
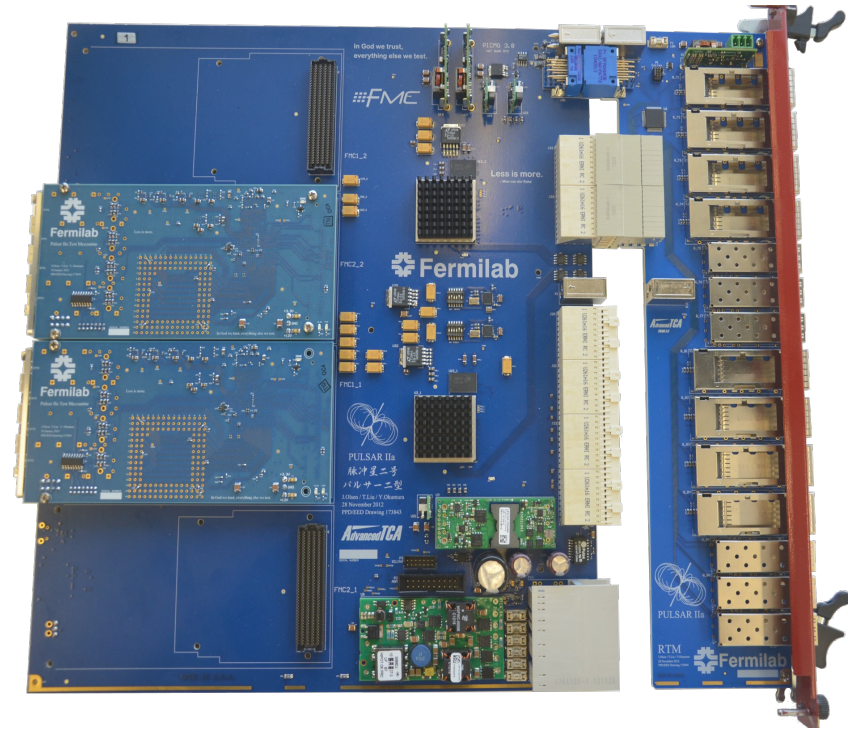
Current Computing Interests

- Scale-out HLT tracking to dense parallel systems?
 - Using OpenMPI/MP
 - Pending NSF-PIF submission with Choudhary et. al.
- Heterogenous technology to reduce cost of data sharing?
 - AMD/ARM HSA devices?
 - OpenCL implmentation?



Current Computing Interests

- Realtime L1 Hardware Tracking Trigger
 - 3D associative memory pattern recognition
 - 40-100 Gpbs ATCA backplane
 - Xilinx firmware development
- Not traditional “computing” per se ...
 - Looking to collaborate with EE/CS to bring this into the mainstream



Northwestern University

- **A private US university**

- Central campus in Evanston, Illinois
 - ~13 miles north of Chicago's "loop"



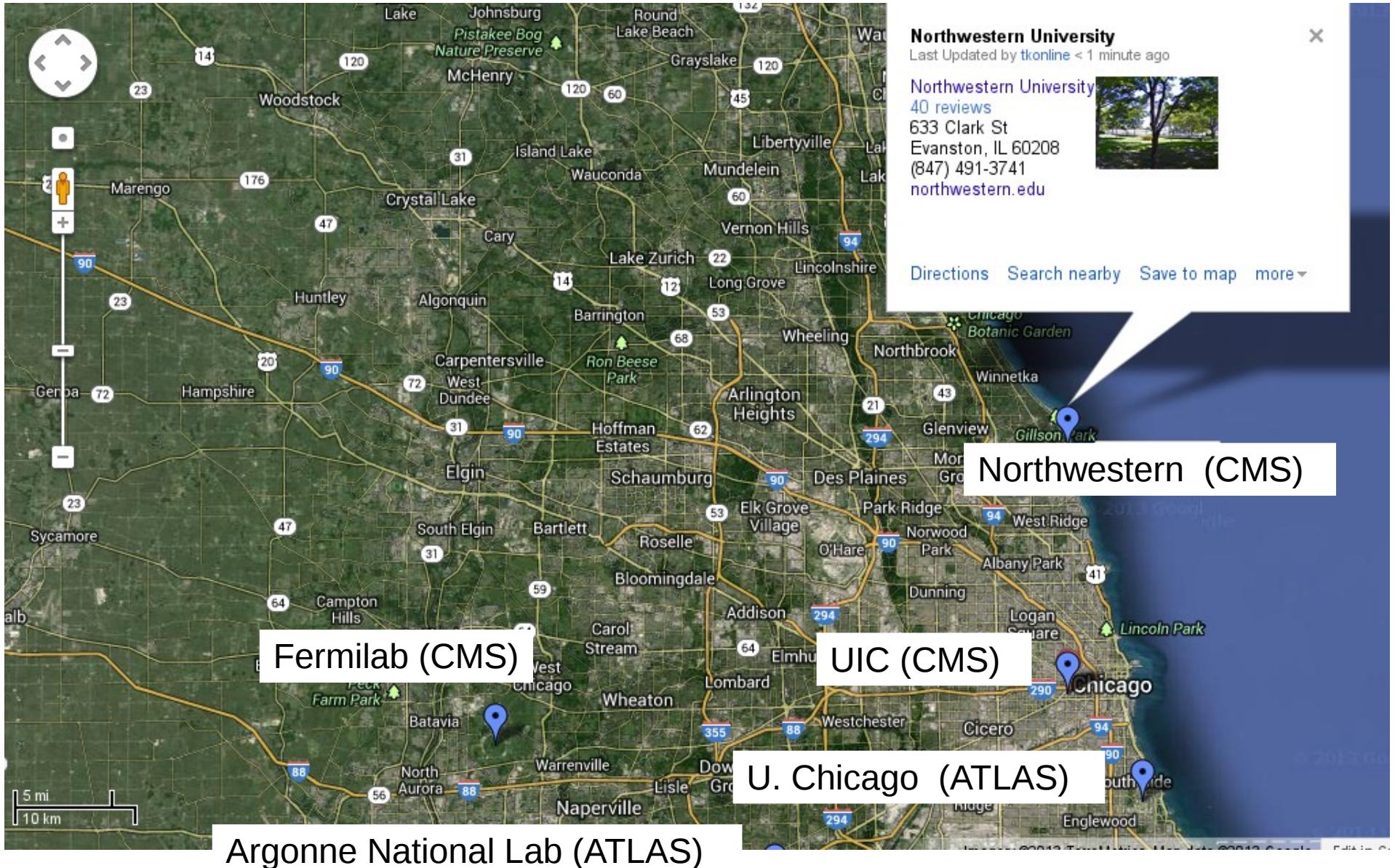
- **Leading US research institution**

- High profile chemistry dept., McCormick (Engineering), Feinberg (Medicine)

- **Physics Department**

- 32 graduate faculty, ~35 PDs, ~90 GSs
- HEP funding from DOE (CMS: Schellman, Schmitt, Velasco, Hahn)
- Astro/HEP: LIGO, LSST ...

A Bustling (Research) Neighborhood





Lake Michigan



Chicago





Lake Michigan



Chicago



- A nice place for a workshop!
 - Weather permitting ...

Quest

Northwestern's large-scale, high-performance research computing cluster

– Architecture:

- IBM iDataPlex
- TOP500 ranked
- Intel chips, RedHat OS

– Network:

- Infiniband interconnects : high-throughput, low-latency
- WAN: part of the **starlight network** (1 GbE, 10GbE)
- LAN: currently 1 GbE within the university, NSF support for upgrading to 10 GbE



OSG-AHM Venue

- Kellogg School's Allen Center



- All activities (lunch, sessions, reception) will be there
- Easily reachable from all points on campus / Evanston

NU Sponsors for OSG-AHM



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College of Arts
and Sciences

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NUIT

Northwestern University Information Technology

C I E R A
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AND RESEARCH IN ASTROPHYSICS