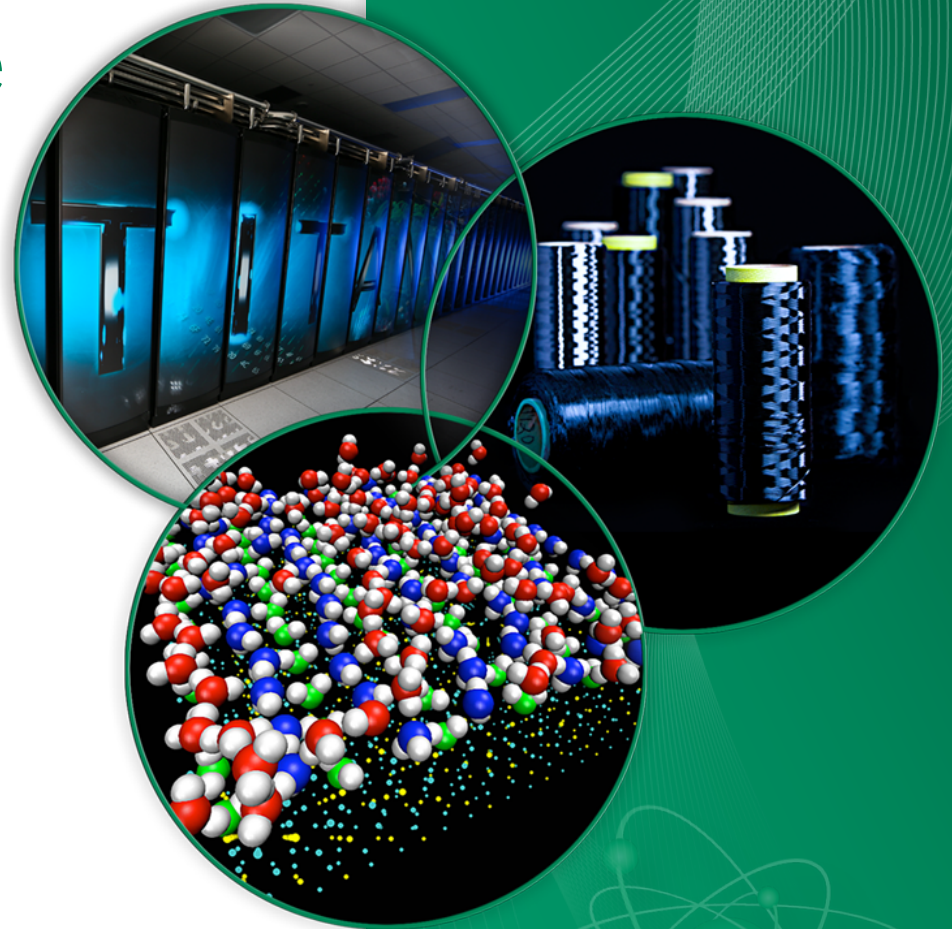# ICAT4 Experience at ORNL/SNS

Shelly Ren

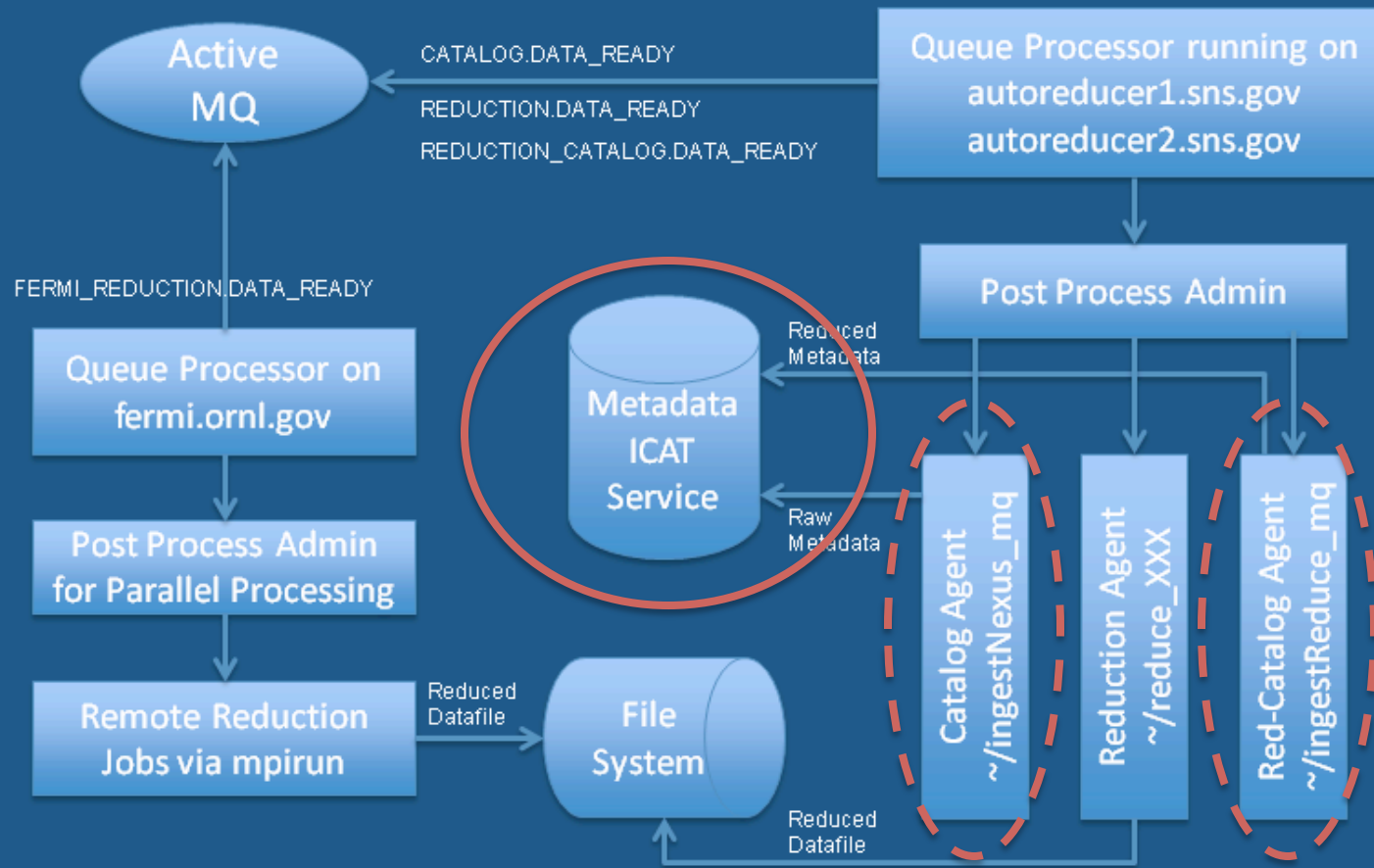**Scientific Information Systems**

March 24, 2014

How is ICAT used at SNS today?

- Fully integrated with SNS post processing

  ➢ Auto catalog of raw experiment data

  ➢ Auto catalog of auto reduced data

- Web service to serve live experiment monitor

  ➢ Up to date information about a proposal

  ➢ Up to date information about runs of a proposal

- Web service to serve for search engines (findnexus, finddata, Filefinder):

  ➢ Summary of a proposal

  ➢ Metadata of an experiment/run

  ➢ Location of experiment data

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Automated Data Catalog and Data Reduction

Experiment Monitor

Experiment Data Display

Run title: Run=42172,Ba3NiSb2O9, powder,T=1.51 K,7.5 meV,Fermi=180 Hz><
Run start: March 23, 2014, 11:18 p.m.
Run end: March 24, 2014, 6:23 a.m.

Experiment parameters
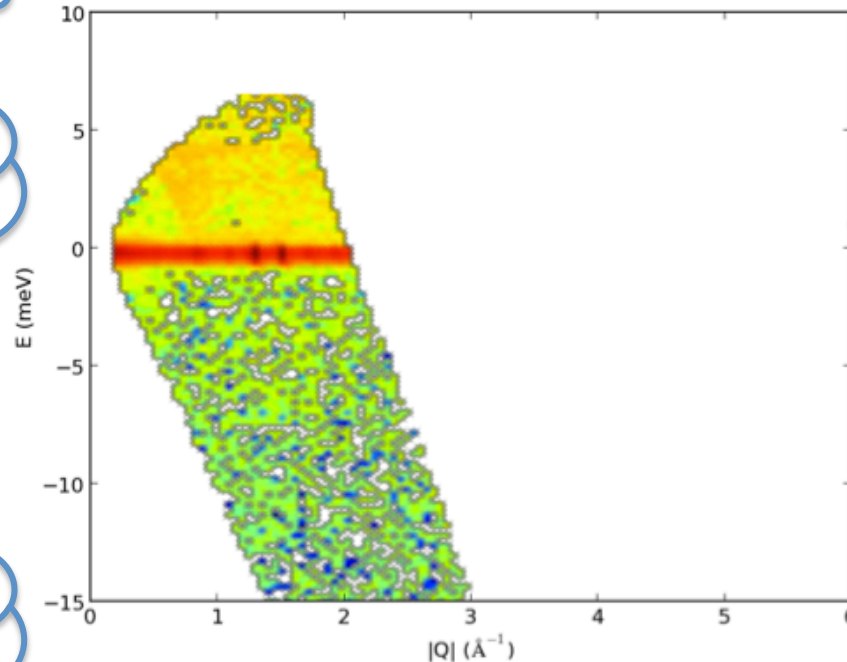
Plot of auto reduced data

Experiment data location

Data files:

- /SNS/HYS/IPTS-10498/adara/HYS_42172.adara
- /SNS/HYS/IPTS-10498/nexus/HYS_42172.nxs.h5

Reduced files:

- /SNS/HYS/IPTS-10498/shared/autoreduce/4pixel/HYS_42172_4pixel.nxspe
- /SNS/HYS/IPTS-10498/shared/autoreduce/msk_tube/HYS_42172_msk_tube_spe.nxs
- /SNS/HYS/IPTS-10498/shared/autoreduce/reduction_log/HYS_42172.nxs.h5.log
- /SNS/HYS/IPTS-10498/shared/autoreduce/4pixel/HYS_42172_4pixel_spe.nxs
- /SNS/HYS/IPTS-10498/shared/autoreduce/msk_tube/HYS_42172_msk_tube.nxspe
- /SNS/HYS/IPTS-10498/shared/autoreduce/msk_tube /HYS_42172_msk_tube_spe.nxs.png

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More about ICAT tomorrow

- Web service to encapsulate database/objects from application users

  ➢ Integrated user or guest portal

  ➢ Experiment hall monitors

- ICAT driven fully automate data reduction

  ➢ Auto reduce via the latest calibration, characterization runs

  ➢ Auto reduce via strategies defined in ICAT

- Statistical distribution of experiment parameters, aka process variables

- ICAT assisted experiment design

ICAT Installation, Performance, Concerns

- Plan to roll ICAT 4.3 in the summer break

- Still need to work on and test out Rules

- ICAT 4.2 seems to run smoothly in production

- Potential performance concerns: load and search of large volume of dataset and datafile parameters

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