Automated Analysis of NIF Experimental Data:

Reliable, Systematic, Archived Results for User Community

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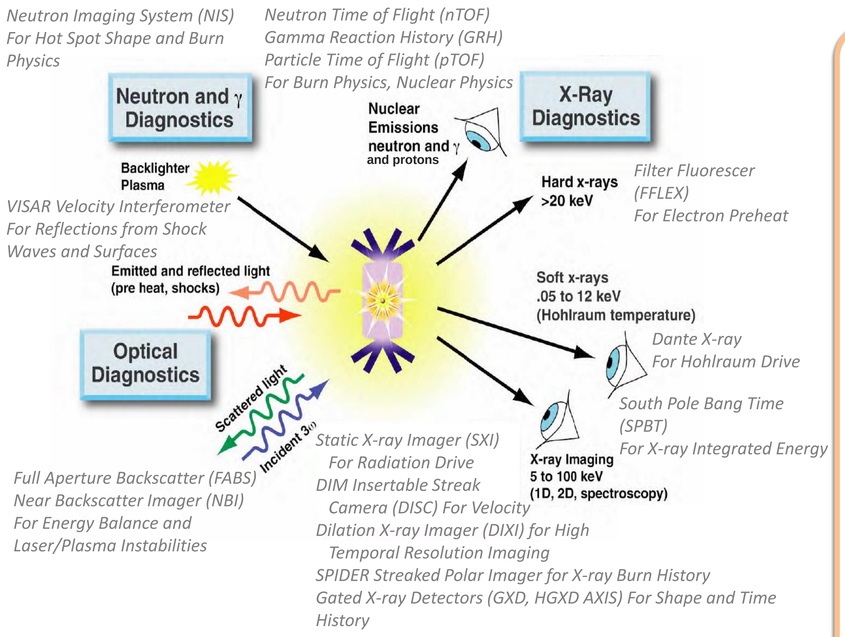
The automated analysis of hundreds of raw detector data files immediately after each NIF experiment is relied on by NIF scientists and users to evaluate NIF experimental data.

These three main strategic areas have the biggest impact on eliminating NIF physicists' time spent on manual analysis and allowing outside users to access standardized, quality NIF results without extensive knowledge of NIF specific hardware and detectors:

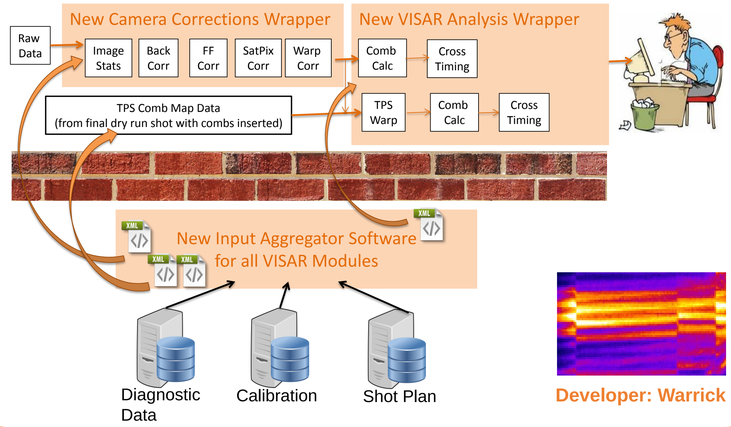
1) Coverage for **more detectors** including standardized, vetted instrument corrections for each type NIF detector
2) Support for **more types of NIF shots** including classified data
3) Update to **more robust** data driven engine that assembles needed calibration and experiment data into analysis routines



Support For More Shots: VISAR Classified

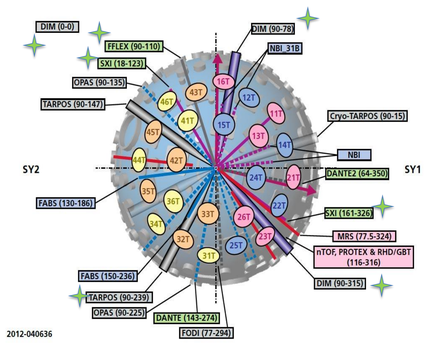
Classified data cannot be processed or displayed in our automated framework. To support scientists on an increased number of shots we developed a new desktop wrapper framework for use on closed computers for VISAR analysis.

VISAR Classified Analysis Flow Chart:

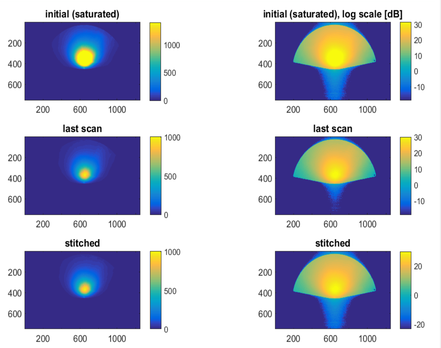


Developer: Warrick

Automated Analysis for More Detectors: Image Plates and Gated X-Ray Detector Timing

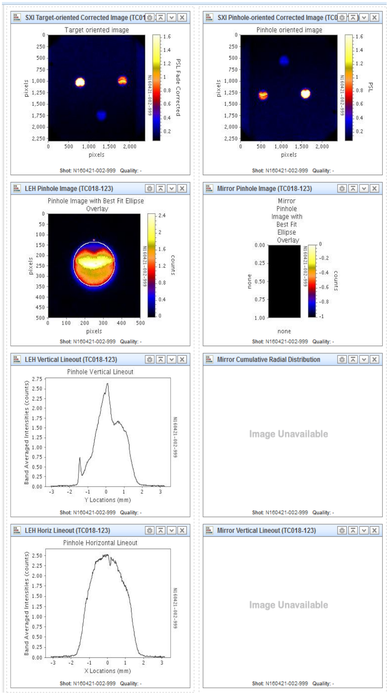


High Dynamic Range Stitching for Image Plate Diagnostics



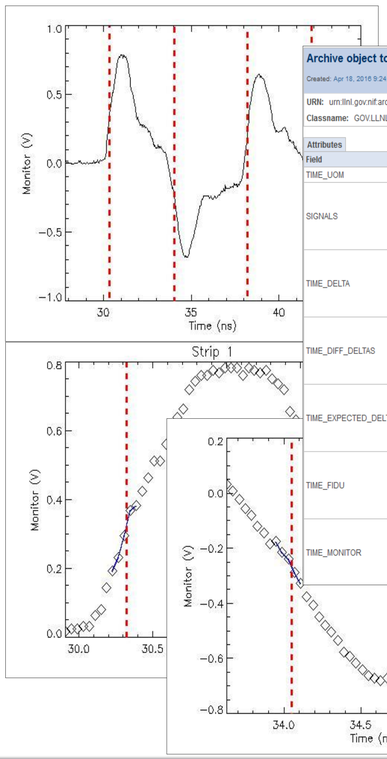
Developer: Rever

Image Plate Analysis to Estimate Laser Entrance Hole Size



Developer: Rever

Framing Camera Strip Timing Analysis for AXIS and DIXI



Archive object to store analysis results of the DIXI_Timing module Return to list

Created: Apr 18, 2016 9:24:48 PM Updated: Apr 18, 2016 9:24:49 PM

Object 25 of 25 object(s) << Previous | Next >>

URN: urn:llnl.gov:nif:archive:87e393f0-ce28-43bf-b161-bc3b2fe56449

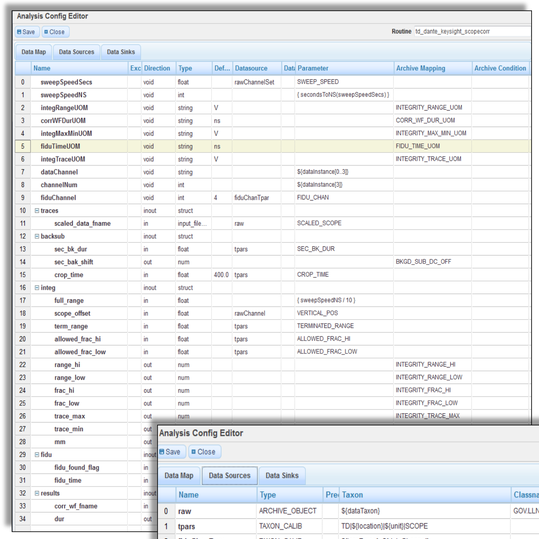
Classname: GOV.LLNL.NIF.NDR.CA.DIXI_TIMING

Attributes

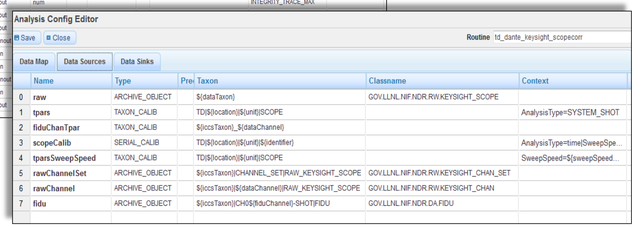
Field	Description	Type	Value
TIME_UOM	unit of measure for time deltas, fidu and monitor	STRING	ns
SIGNALS	Channel signal name	STRING_ARRAY	1 PC1 2 PC2 3 PC3 4 FIDU
TIME_DELTA	FIDU-MONITOR time interval	DOUBLE_ARRAY	1 548.01184 2 548.4054 3 548.02045 4 0.0
TIME_DIFF_DELTAS	time difference between expected and true deltas	DOUBLE_ARRAY	1 7.320862 2 7.5023804 3 7.678467 4 0.0
TIME_EXPECTED_DELTA	Expected FIDU-MONITOR time interval	DOUBLE_ARRAY	1 540.691 2 540.903 3 540.342 4 0.0
TIME_FIDU	Scope fidu time	DOUBLE_ARRAY	1 -388.04495 2 -388.04495 3 -388.04495 4 -388.04495
TIME_MONITOR	Channel signal time	DOUBLE_ARRAY	1 159.96687 2 160.36044 3 159.97551 4 -388.04495

Developer: Munteanu

Robust Data Driven Engine for Automation Framework



Designed in-house, our self-documenting data driven framework reliably assembles the thousands of needed configuration, calibration , and experimental data files for analysis routines.



Developers: Analysis Team & Bettenhausen, Hahn, Hutton

Lawrence Livermore National Laboratory

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NIF