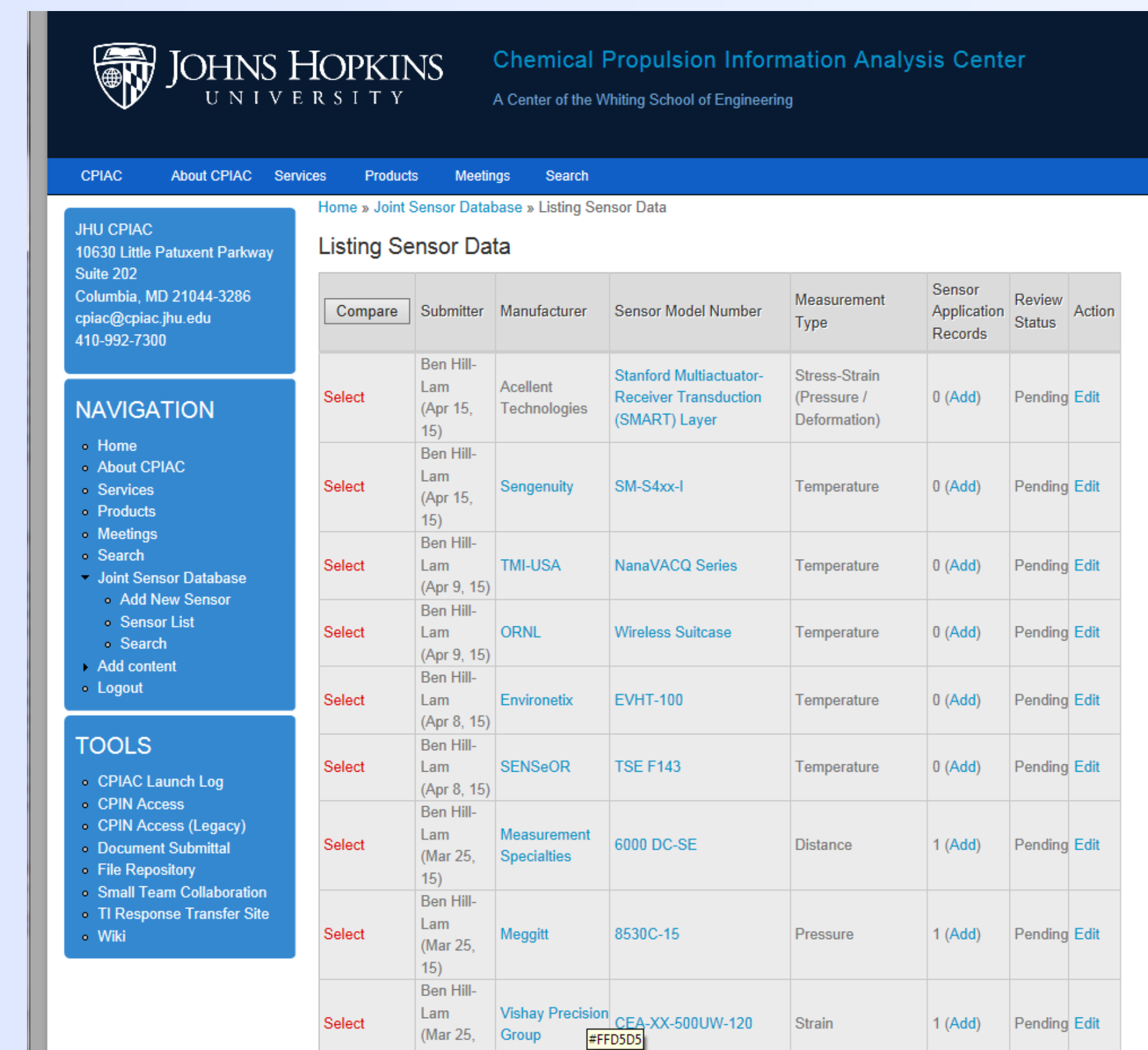


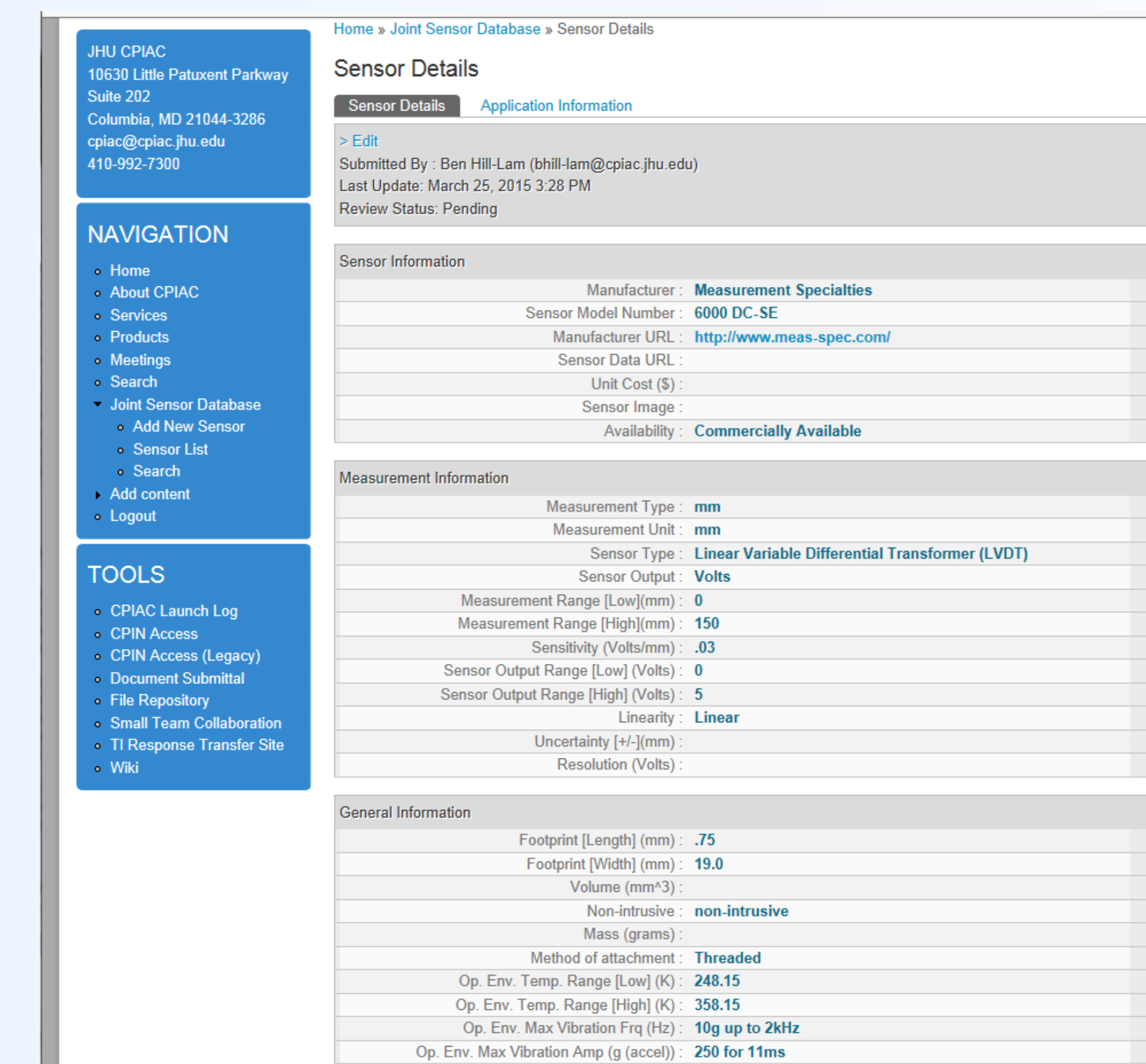
History and Need

- DoE NETL and JANNAF identified need for community accessible sensor knowledgebase
- No central database means a duplication of effort, wasted time and research money
- Records on sensors' applications were often scattered or proprietary
- Need to identify gaps in sensor technology so that:
 - TRL of new sensors can be tracked
 - Industry or academia can fill those gaps with new technology and research
- CADRE, with support from DoE NETL and JANNAF, developed a secure, online, flexible knowledgebase for current, in development, and historically significant sensors

Collaborative Sensor Technical Information & Sensor Application Details



Compare	Submitter	Manufacturer	Sensor Model Number	Measurement Type	Sensor Application Records	Review Status	Action
Select	Ben Hill-Lam (Apr 15, 15)	Acculant Technologies	Stanford Multifunctional Receiver Transduction (SMART) Layer	Stress Strain (Pressure / Deformation)	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Apr 15, 15)	Sengenuly	SM-S4xx-1	Temperature	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Apr 9, 15)	TMI-USA	NanoVACO Series	Temperature	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Apr 9, 15)	ORNL	Wireless Subcase	Temperature	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Apr 8, 15)	Envirotronix	EVHT-100	Temperature	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Apr 8, 15)	SENSaOR	TSE F143	Temperature	0 (Add)	Pending Edit	
Select	Ben Hill-Lam (Mar 25, 15)	Measurement Specialties	6000 DC-SE	Distance	1 (Add)	Pending Edit	
Select	Ben Hill-Lam (Mar 25, 15)	Maggi	8530C-15	Pressure	1 (Add)	Pending Edit	
Select	Ben Hill-Lam (Mar 25, 15)	Vishay Precision Group	CPA-XX-500UV-120	Strain	1 (Add)	Pending Edit	



Sensor Details

Submitted By: Ben Hill-Lam (bhill-lam@cpiac.jhu.edu)
Last Update: March 25, 2015 3:28 PM
Review Status: Pending

NAVIGATION

- Home
- About CPAC
- Services
- Products
- Meetings
- Search
- Joint Sensor Database
 - Add New Sensor
 - Sensor List
 - Search
 - Add content
 - Logout

TOOLS

- CPAC Launch Log
- CPN Access
- CPN Access (Legacy)
- Document Submittal
- File Repository
- Small Team Collaboration
- TI Response Transfer Site
- Wiki

Sensor Information

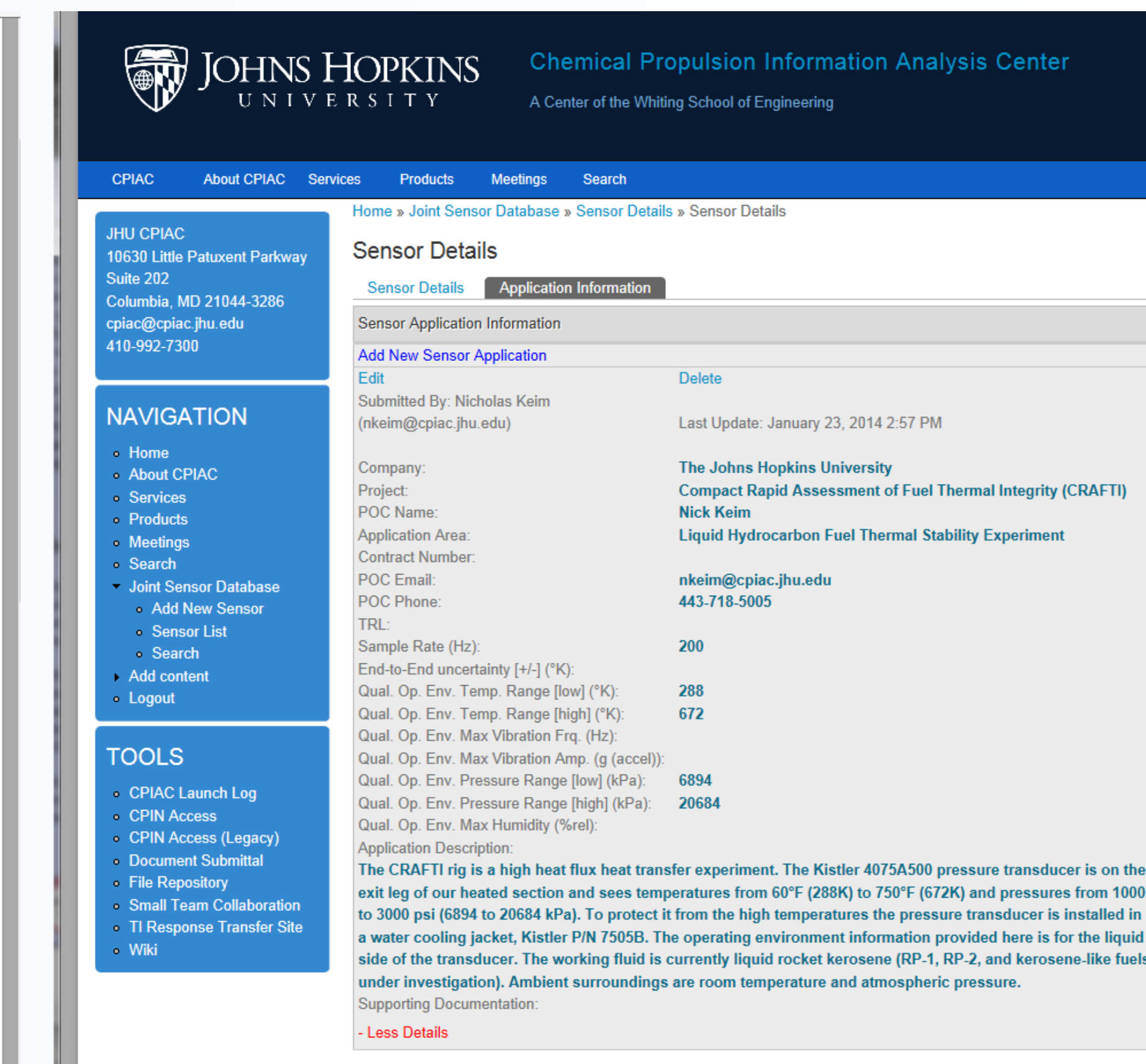
Manufacturer: Measurement Specialties
Sensor Model Number: 6000 DC-SE
Manufacturer URL: <http://www.meas-spec.com/>
Sensor Data URL:
Unit Cost (\$):
Sensor Image:
Availability: Commercially Available

Measurement Information

Measurement Type: mms
Measurement Unit: mms
Sensor Type: Linear Variable Differential Transformer (LVDT)
Sensor Output: Volts
Measurement Range (Low/High): 0
Measurement Range (High/Low): 150
Sensitivity (Volts/mm): .03
Sensor Output Range (Low) (Volts): 0
Sensor Output Range (High) (Volts): 5
Linearity: Linear
Uncertainty (±): (mm)
Resolution (Volts):

General Information

Footprint (Length) (mm): .75
Footprint (Width) (mm): 19.0
Volume (mm³):
Non-intrusive: non-intrusive
Mass (grams): Threaded
Method of attachment: 248.15
Op. Env. Temp. Range (Low) (K): 248.15
Op. Env. Temp. Range (High) (K): 358.15
Op. Env. Max Vibration Freq (Hz): 10g up to 2kHz
Op. Env. Max Vibration Amp (g (accel)): 250 for 11ms



Sensor Details

Submitted By: Nicholas Keim (nkeim@cpiac.jhu.edu)
Last Update: January 23, 2014 2:57 PM

NAVIGATION

- Home
- About CPAC
- Services
- Products
- Meetings
- Search
- Joint Sensor Database
 - Add New Sensor
 - Sensor List
 - Search
 - Add content
 - Logout

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Sensor Application Information

Add New Sensor Application

Company: The Johns Hopkins University
Project: Compact Rapid Assessment of Fuel Thermal Integrity (CRAFT)
POC Name: Nick Keim
Application Area: Liquid Hydrocarbon Fuel Thermal Stability Experiment
Contract Number:
POC Email: nkeim@cpiac.jhu.edu
POC Phone: 443-718-5085
TRL:
Sample Rate (Hz): 200
End-to-End uncertainty (±) (%):
Qual. Op. Env. Temp. Range (low) (K): 288
Qual. Op. Env. Temp. Range (high) (K): 672
Qual. Op. Env. Max Vibration Freq (Hz):
Qual. Op. Env. Max Vibration Amp (g (accel)):
Qual. Op. Env. Pressure Range (low) (kPa): 6894
Qual. Op. Env. Pressure Range (high) (kPa): 20684
Qual. Op. Env. Max Humidity (vol%):
Application Description:
The CRAFT rig is a high heat flux heat transfer experiment. The Kistler 4075A500 pressure transducer is on the exit leg of our heated section and sees temperatures from 60°F (288K) to 750°F (672K) and pressures from 1000 to 3000 psi (6894 to 20684 kPa). To protect it from the high temperatures the pressure transducer is installed in a water cooling jacket, Kistler P/N 7505B. The operating environment information provided here is for the liquid side of the transducer. The working fluid is currently liquid rocket kerosene (RP-1, RP-2, and kerosene like fuels under investigation). Ambient surroundings are room temperature and atmospheric pressure.
Supporting Documentation:
- Less Details

JANNAF Oversight

Joint-Army-Navy-NASA-Air Force Interagency Propulsion Committee will provide stewardship of the database

The Engine Health Management panel (EHM) and Integrated Health Management (IHM) panel will provide direct oversight and validation of sensor data

The EHM and IHM panels will also oversee promotion and acquisition of new sensor data

The Joint Sensor Database for Propulsion and Energetic Systems

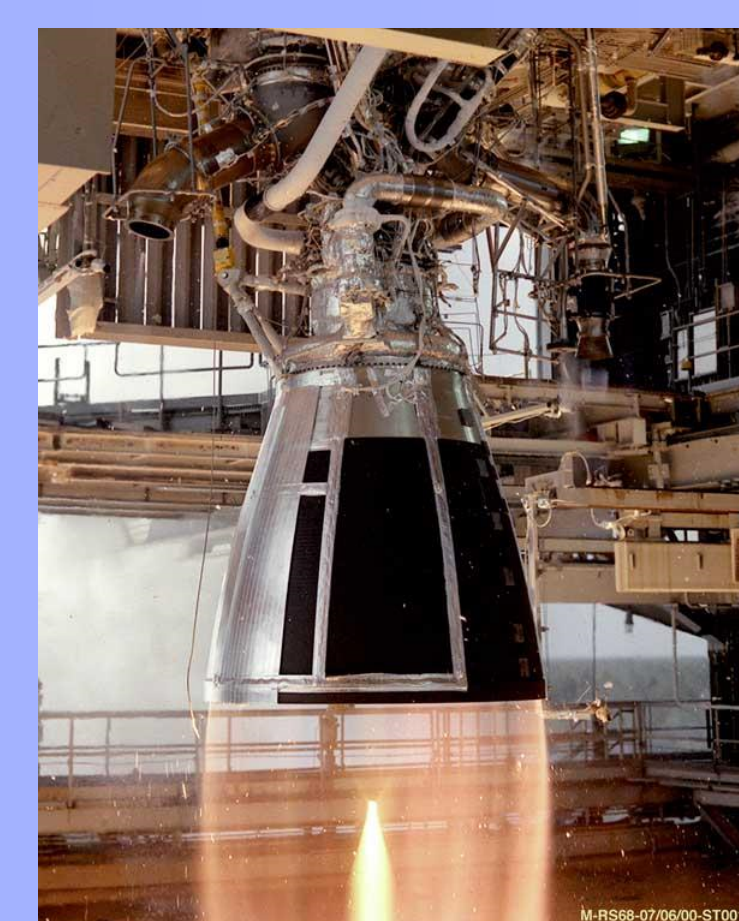


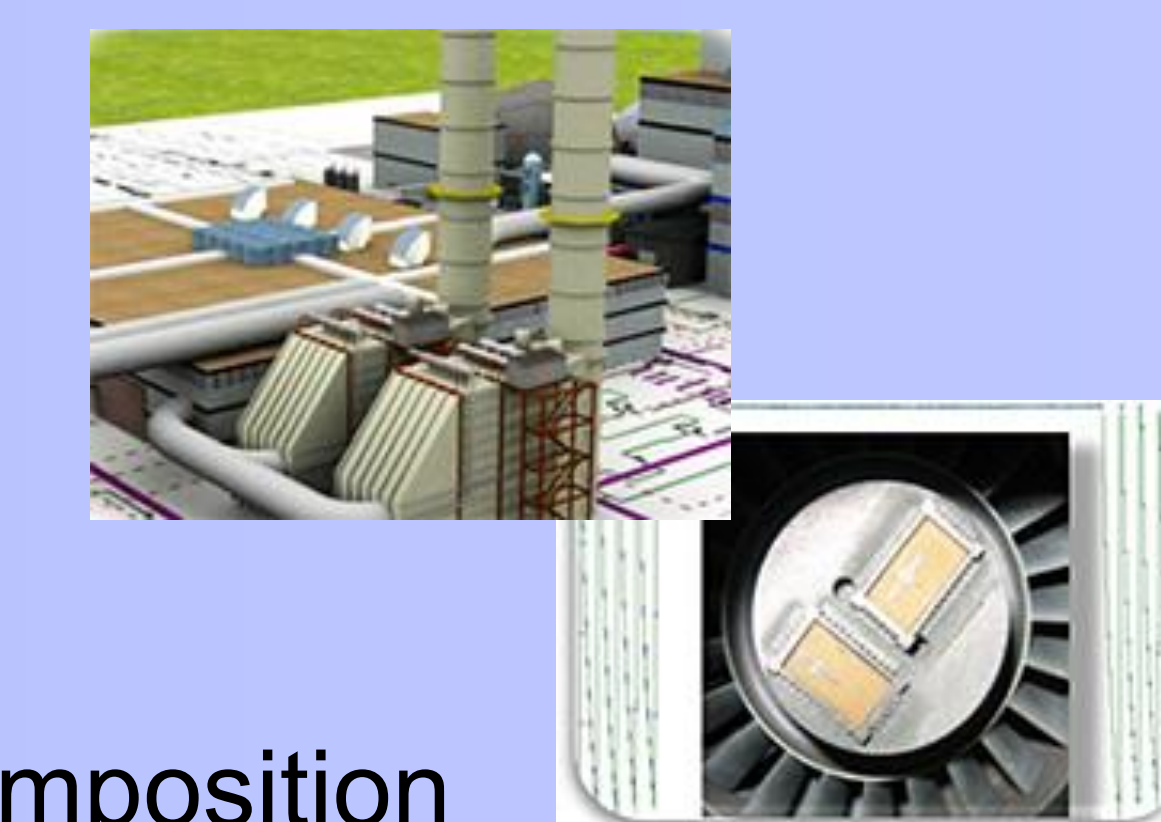
Image courtesy NASA

Database developed and freely available to serve as a nexus of collaboration between the DoE, DoD, and NASA on development and use of sensors.

Rocket propulsion systems have similar sensor needs and requirements as power generation systems:

- Monitoring of key parameters: temperature, pressure, gas composition
- Ability to withstand harsh environments
- Online and real-time data collection

Images courtesy DoE NETL



Get Access

Sign up to use the database-ITAR restricted, US citizens only, government and government contractors only
<https://www.cpiac.jhu.edu/>
<https://www.jannaf.org/>

Data Collection

Send sensor information via email (datasheets, papers, spreadsheets...)
bhill-lam@cpiac.jhu.edu

Or register for an account and add sensors and sensor applications yourself - the database is collaborative!

Database Use Scenarios

Find relevant existing sensors using a search mechanism that includes sensor technical details

See where sensors have been utilized previously through a sensor's associated application entries

- Submitted by users to document success (and failure) and share lessons learned on the application of a particular sensor

Central access makes it possible to easily identify and compare sensors across a range of criteria

Cross organizational usage promotes sharing of technical information and potential collaboration opportunities