Welcome to the 2012 PDV workshop

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October 22, 2012

Sandia National Laboratories

National Nuclear Security Administration

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Acknowledgements

- Previous hosts
  - Ted Strand (2006, 2007, 2011) **Livermore**
  - Kevin Fleming (2008) **Sandia**
  - Institute for Advanced Technology (2009) **UT Austin**
  - Glenn Daehn (2010) **Ohio State University**
    - `https://kb.osu.edu/dspace/handle/1811/52627`

- This year's workshop ***existence*** is due to the efforts of Laveryn Apodaca

- Technical committee
  - Tom Ao, Mike Furnish, Brook Jilek, Devon Dalton

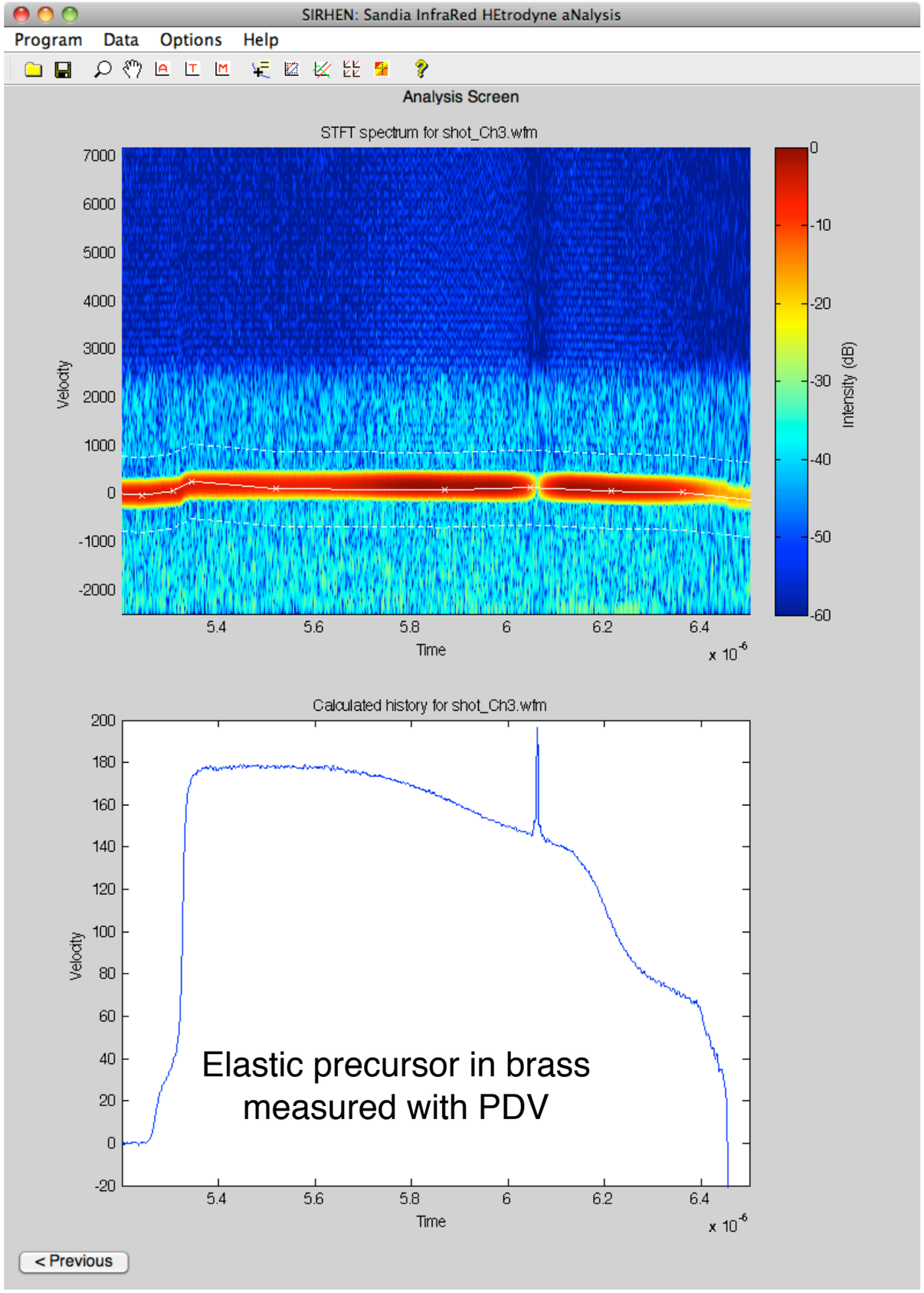
Why are we here?

- Discuss Photonic Doppler Velocimetry and its applications
  - Heterodyne velocimetry (HetV)
  - Laser Doppler Velocimetry (LDV)
  - Displacement Interferometer System for Any Reflector (DISAR)
  - I prefer the term PDV because it sounds like a small amount of work (dW = P dV)

- Workshop goals
  - Broaden the base of PDV users
  - Learn about relevant technology developments
  - Share experiences (good and bad)
  - Cultivate new ideas

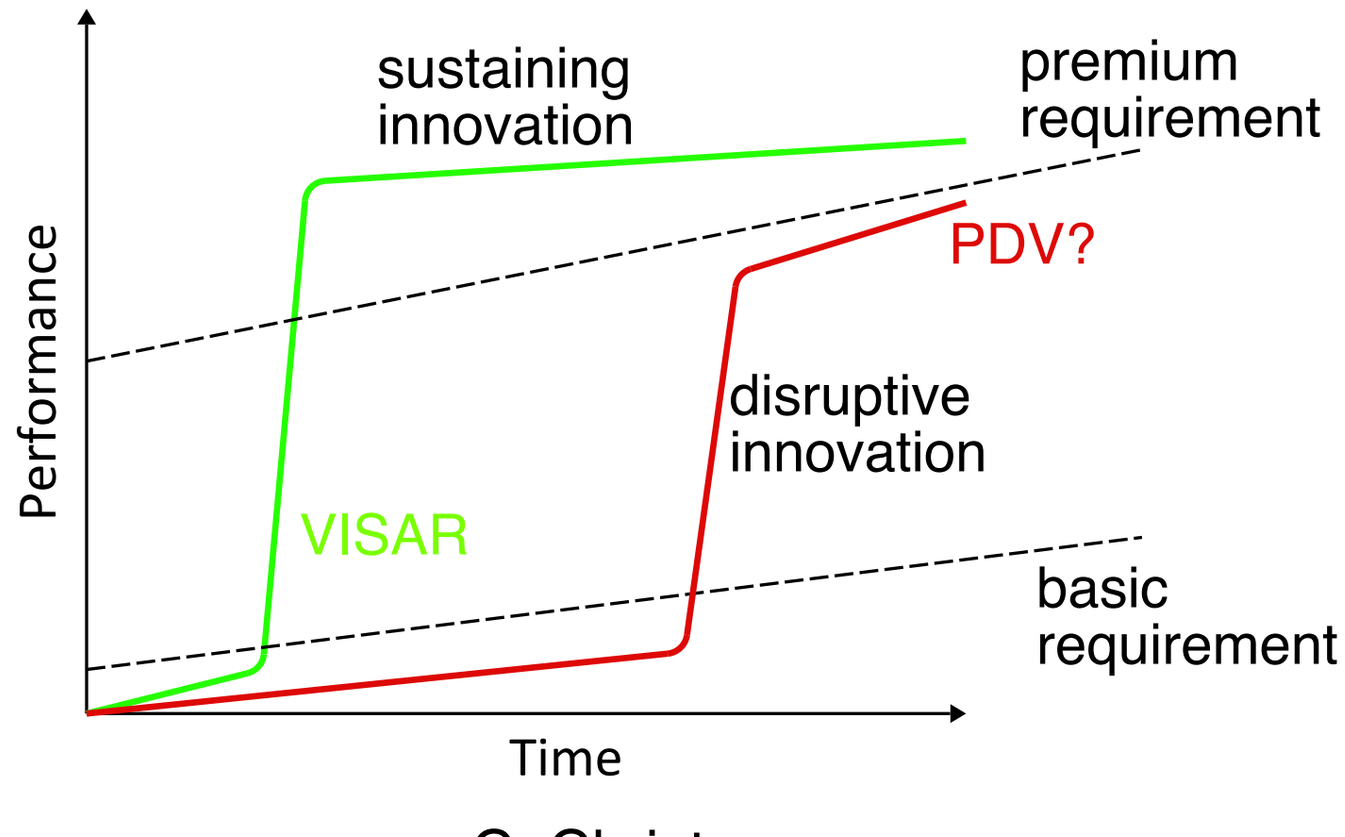
What is PDV?

- Mix Doppler shifted light with a reference source
- Use telecommunication products to do what would be tedious/expensive otherwise
  - Fiber based
  - Generally operates around 1550 nm
- Beat frequency changes on time scales comparable to the beat period
  - MHz-GHz over us-ns (mostly)



Why are we still talking about PDV?

- PDV is a disruptive innovation
  - Initially very limited
    - No reference control
    - No direction information
    - Low velocity problems
  - Some early advantages
    - Multiple velocity tolerance
    - Easy to field



C. Christensen
The Innovators Dilemma (1997)

- PDV has rapidly evolved, now performance **competitive**
  - Wave profiles at any velocity
  - >20 km/s coverage

An analogy

PDV is an iPod
- -Low cost
- -Versatile
- -Capability changes quickly

VISAR and Fabry-Perot are high-fidelity turn tables. ($89,900 on eBay)

Performance has multiple criteria

Suggestions

- Feel free to ask lots of questions
- Talk to the speakers
  - Schiff Conference room is available for small group discussions
- Meet with the vendors
  - Presentations
  - Tables
- Think about the future
  - Should this workshop continue on its own or merge into another meeting?
  - Any volunteers to host the next meeting?

Schedule

- Today
  - Early morning: Tutorial session
  - Late morning: PDV systems
  - Early afternoon: Vendor presentations
  - Late afternoon: Miscellaneous presentations
- Tomorrow
  - Early morning: PDV challenge
  - Late morning: Components and probes
  - Early afternoon: Analysis
  - Late afternoon: Miscellaneous presentations
- 30 minute breaks, 90 minute lunches