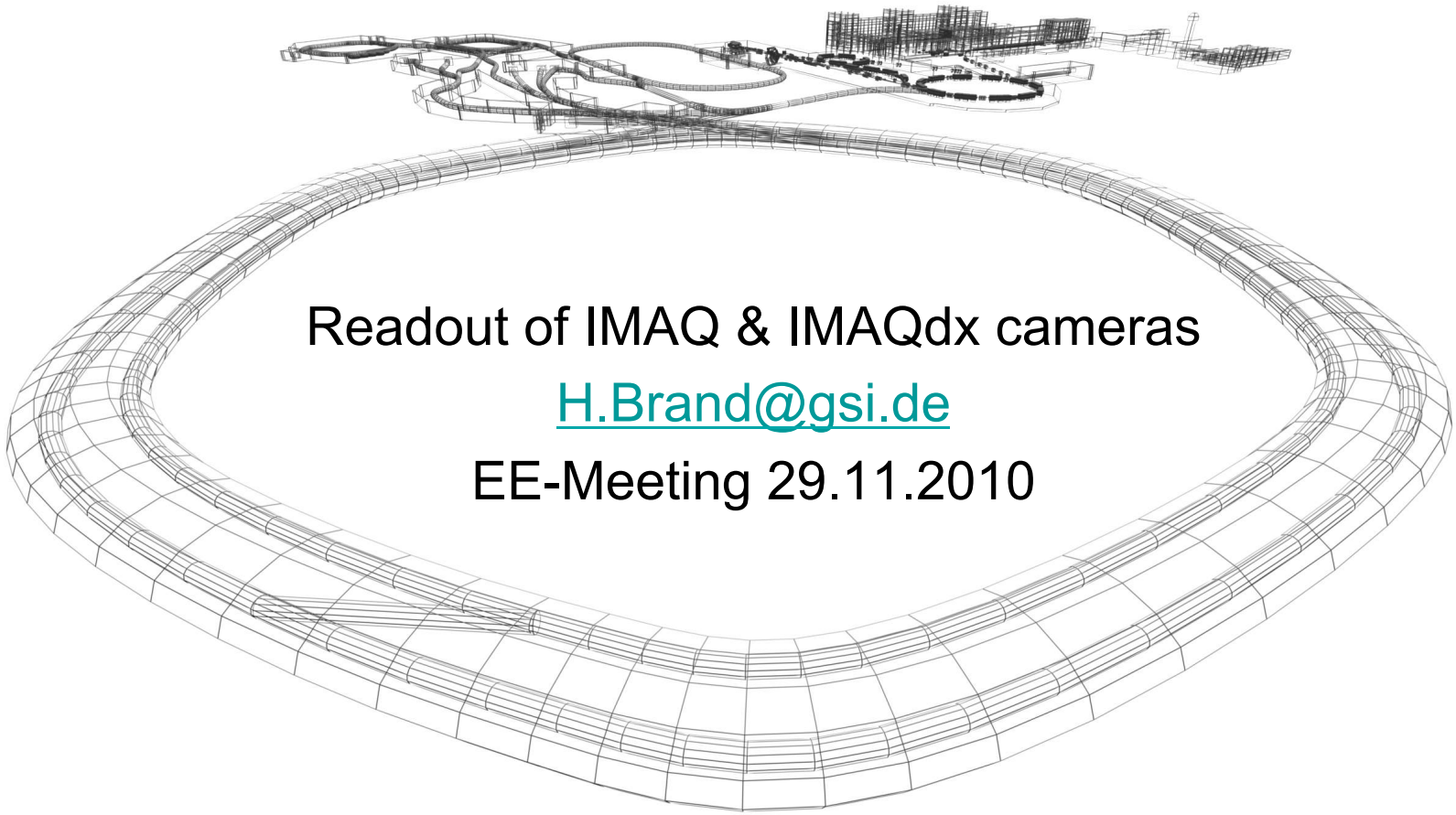
IonBeamVIEW

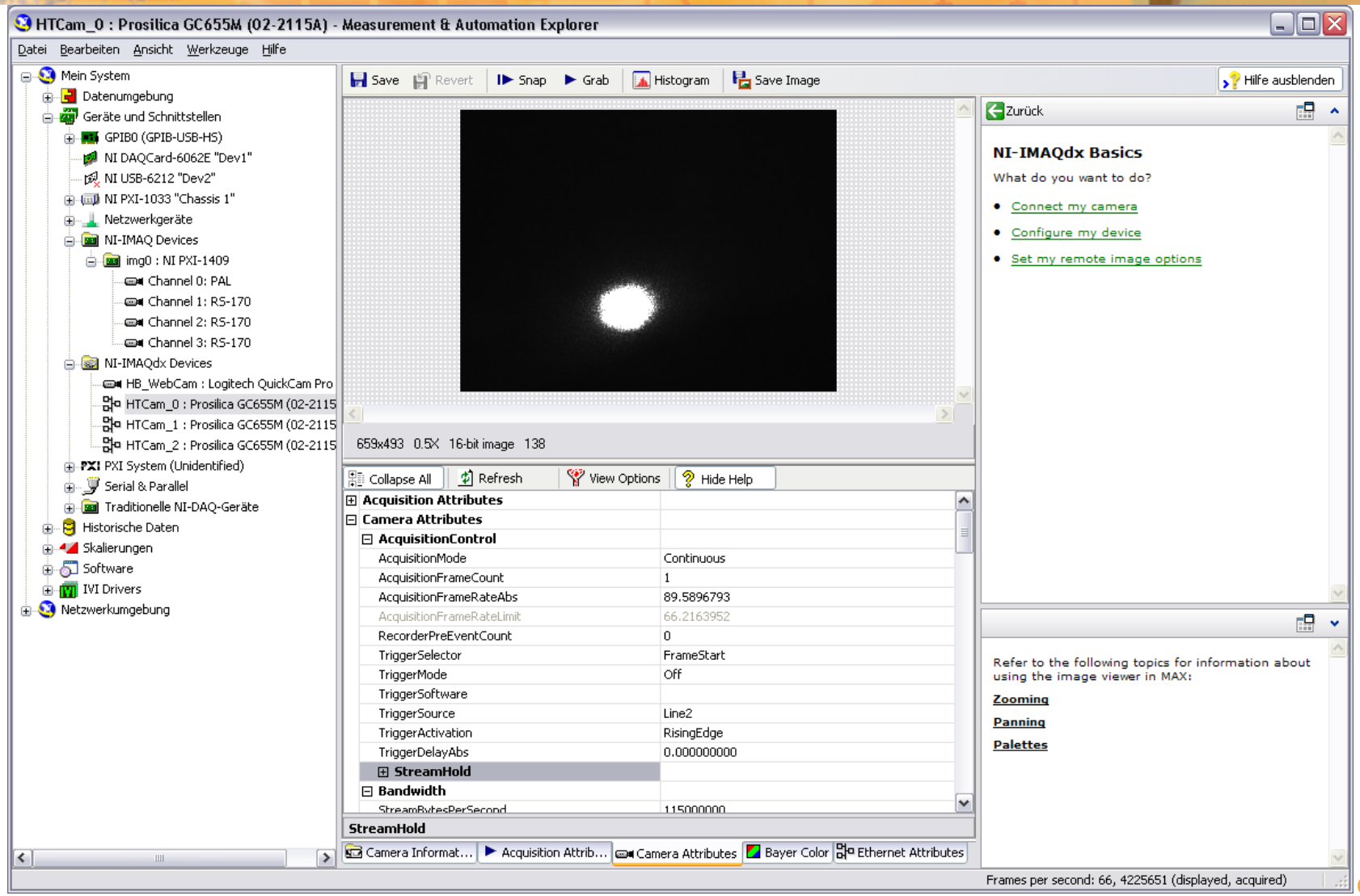


Readout of IMAQ & IMAQdx cameras

H.Brand@gsi.de

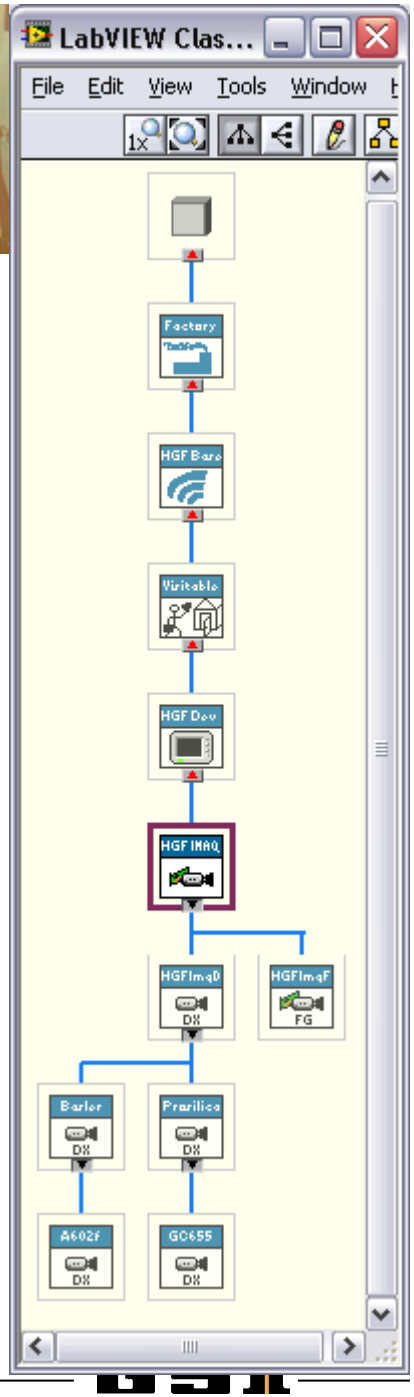
EE-Meeting 29.11.2010

Measurement & Automation Explorer



HGF_ImaqDevice Class

- HGF_Device
  - HGF_ImaqDevice
    - HGF_ImaqFg: IMAQ-Driver
      - Framegrabber (NI PXI-1409)
      - CameraLink
    - HGF_ImaqDx
      - » Firewire (Basler A602f)
      - » GigE (Prosilica GC655)
      - » USB (DirectX 9) (Logitech WebCam)
    - HGF_Basler
      - » HGF_Basler_A602f
    - HGF_Prosilica
      - » HGF_Prosilica_GC655

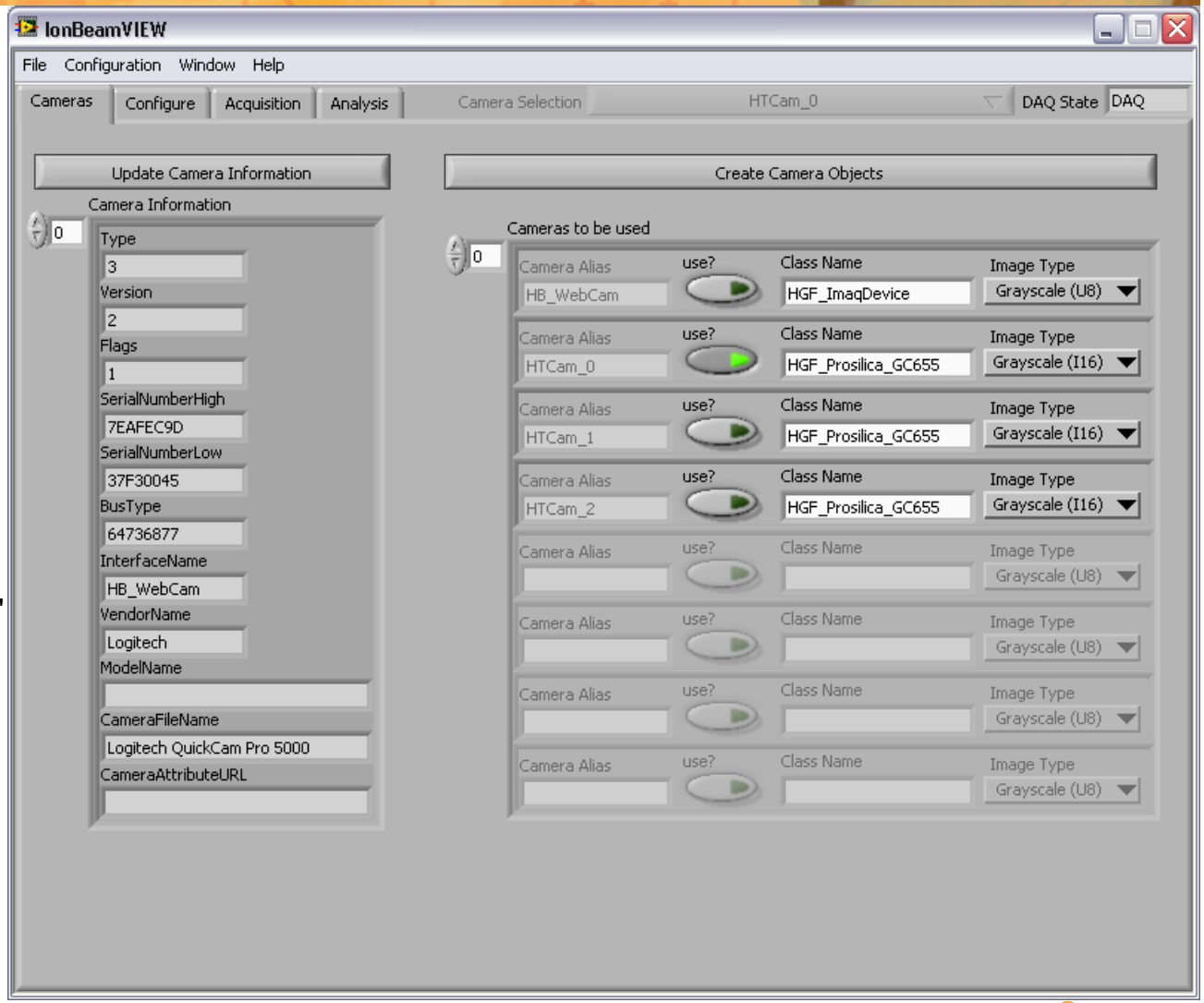


Cameras Selection & Configuration

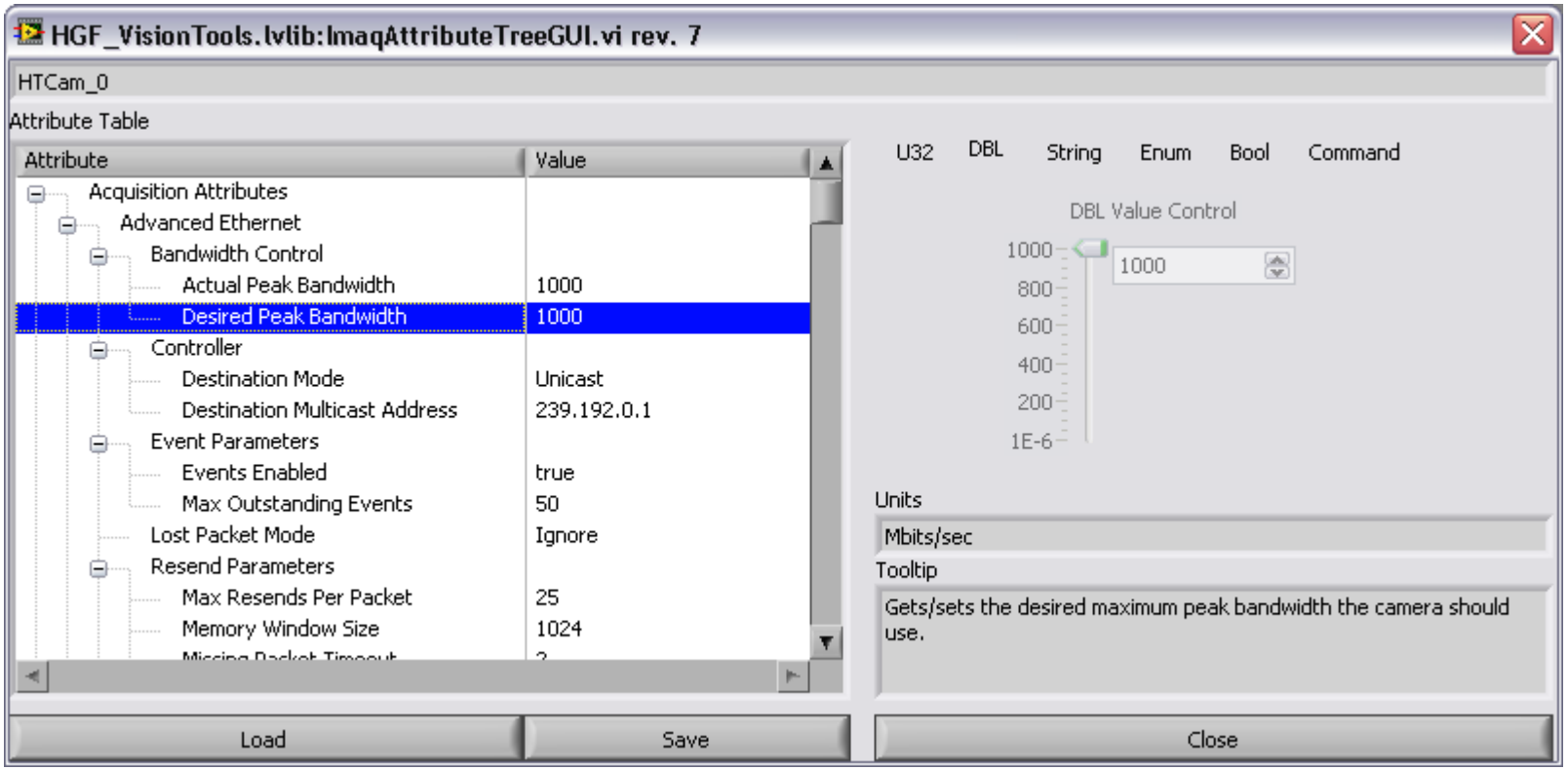
```
[General]
ImageStreamingPath="F:\tmp\Images"

[Camera Aliases]
img0=True
HB_WebCam=False
HTCam_0=True
HTCam_1=False
HTCam_2=False

[HTCam_0]
ClassName=HGF_Prosilica_GC655
ImageType=1
Configuration="F:\HTCam_0_FreeRun.ini"
Background="F:\HTCam_0_BG.png"
Scale_X=0,1059322033898
Scale_Y=0,1059322033898
Center_X=100
Center_Y=100
Center_R=10
```



Camera Attribute Tree

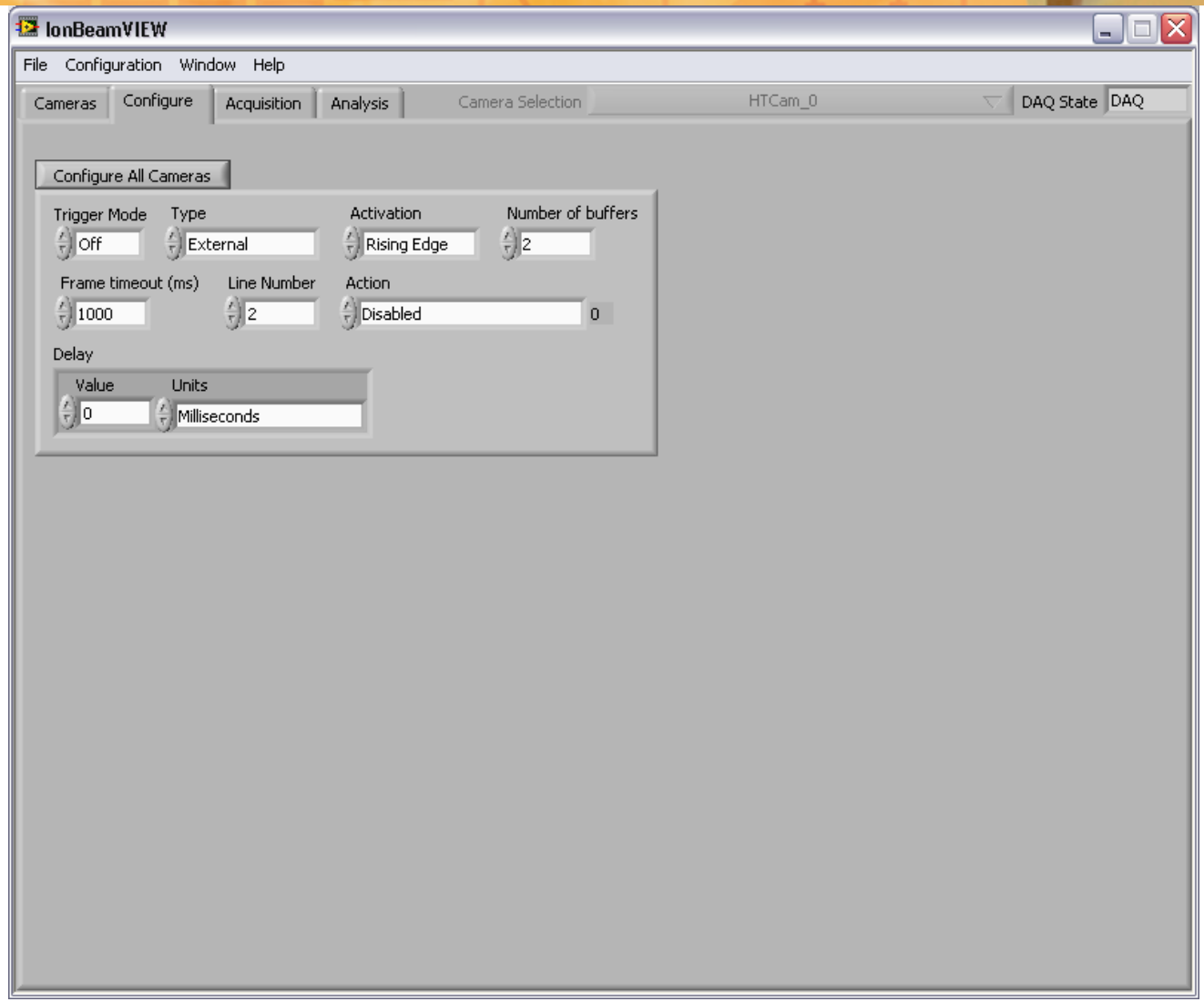


Camera File (excerpt)

```
[NIIMAQ_HEADER]
Type = 2
Version = 8

[CAMERA_DATA]
AcquisitionAttributes::AdvancedEthernet::BandwidthControl::DesiredPeakBandwidth = "1000"
AcquisitionAttributes::AdvancedEthernet::EventParameters::MaxOutstandingEvents = "50"
AcquisitionAttributes::AdvancedEthernet::LostPacketMode = "Ignore"
AcquisitionAttributes::Bayer::GainB = "1"
AcquisitionAttributes::Bayer::GainG = "1"
AcquisitionAttributes::Bayer::GainR = "1"
AcquisitionAttributes::Bayer::Pattern = "Use hardware value"
AcquisitionAttributes::BitsPerPixel = "Use hardware value"
AcquisitionAttributes::ChunkDataDecoding::ChunkDataDecodingEnabled = "false"
AcquisitionAttributes::ChunkDataDecoding::MaximumChunkCopySize = "64"
AcquisitionAttributes::IgnoreFirstFrame = "false"
AcquisitionAttributes::OverwriteMode = "Get Newest"
AcquisitionAttributes::PacketSize = "1500"
AcquisitionAttributes::PixelSignedness = "Signed"
AcquisitionAttributes::ReceiveTimestampMode = "None"
AcquisitionAttributes::ShiftPixelBits = "false"
AcquisitionAttributes::SwapPixelBytes = "false"
AcquisitionAttributes::Timeout = "5000"
CameraAttributes::AcquisitionControl::AcquisitionFrameCount = "1"
CameraAttributes::AcquisitionControl::AcquisitionFrameRateAbs = "1.0085596457131676"
CameraAttributes::AcquisitionControl::AcquisitionMode = "Continuous"
CameraAttributes::AcquisitionControl::RecorderPreEventCount = "0"
CameraAttributes::AcquisitionControl::StreamHold::StreamHoldEnable = "Off"
CameraAttributes::AcquisitionControl::TriggerActivation = "RisingEdge"
CameraAttributes::AcquisitionControl::TriggerDelayAbs = "0"
CameraAttributes::AcquisitionControl::TriggerMode = "Off"
CameraAttributes::AcquisitionControl::TriggerSelector = "FrameStart"
CameraAttributes::AcquisitionControl::TriggerSource = "Freerun"
CameraAttributes::Bandwidth::BandwidthControlMode = "StreamBytesPerSecond"
CameraAttributes::Bandwidth::StreamBytesPerSecond = "115000000"
CameraAttributes::FeatureControl::ExposureAuto = "Off"
CameraAttributes::FeatureControl::ExposureMode = "Timed"
CameraAttributes::FeatureControl::ExposureTimeAbs = "15000"
CameraAttributes::FeatureControl::GainAuto = "Off"
```

Acquisition Configuration



Acquisition Monitoring & Streaming

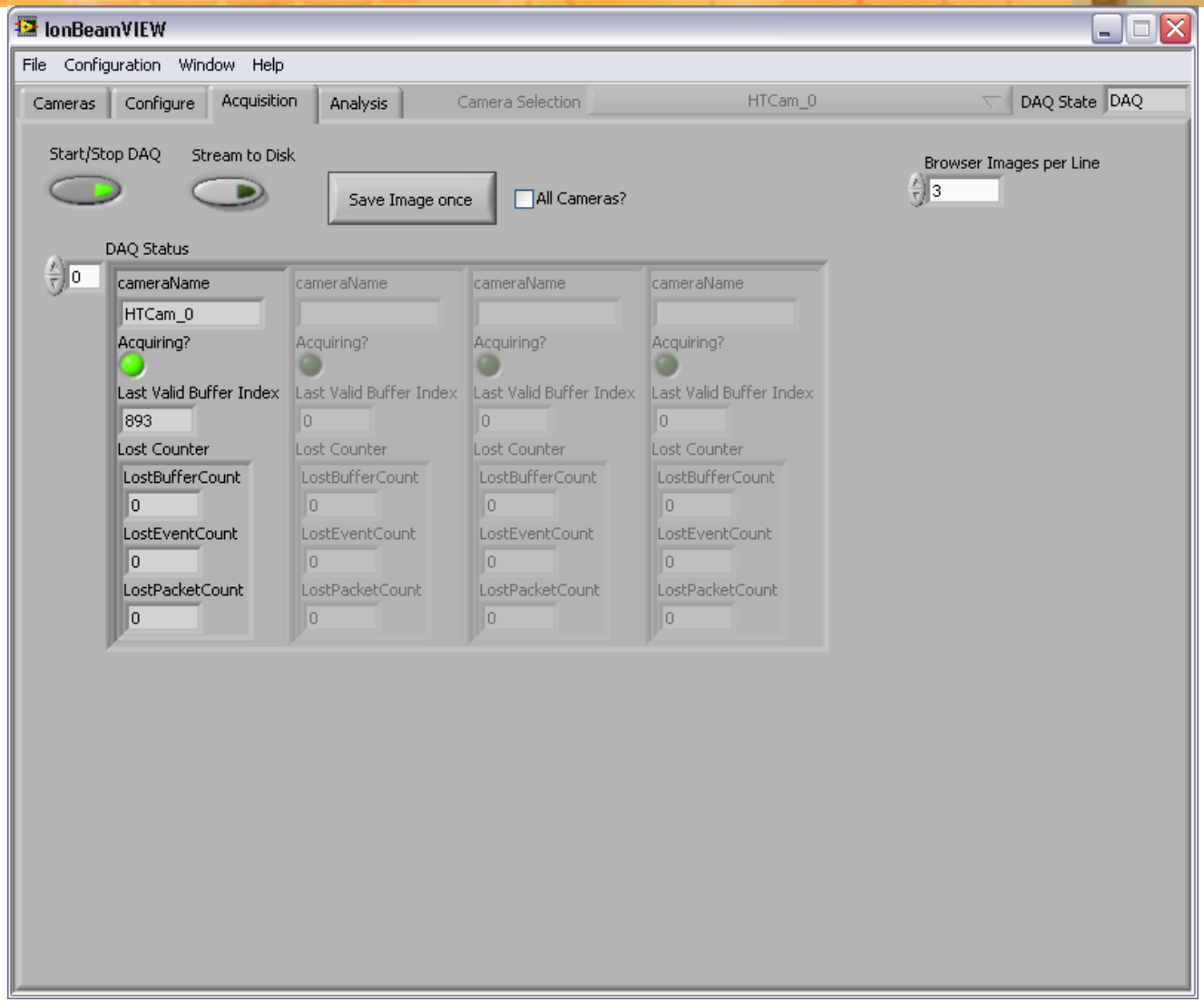
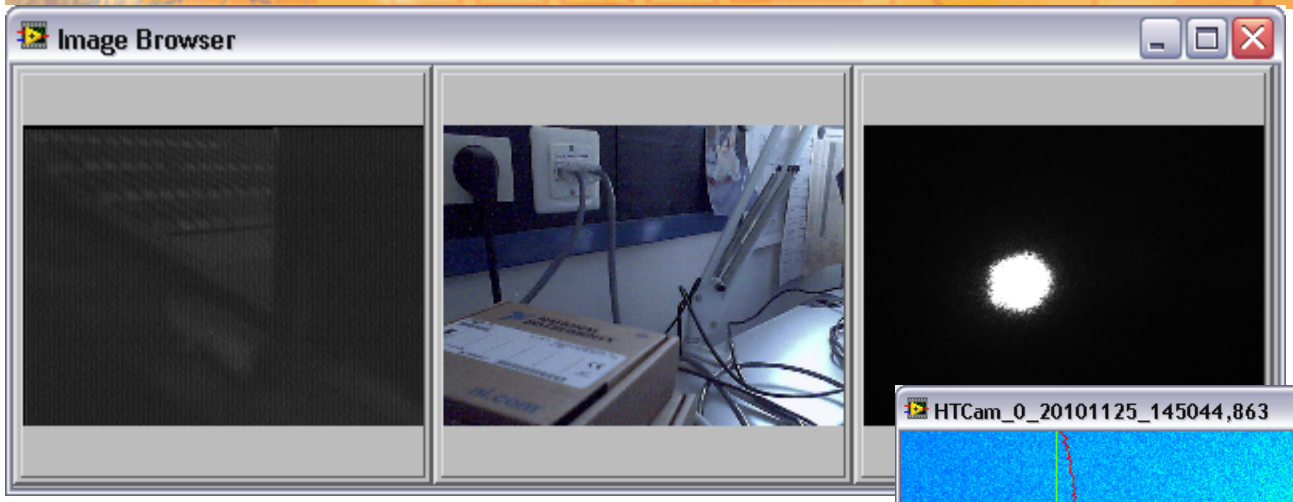
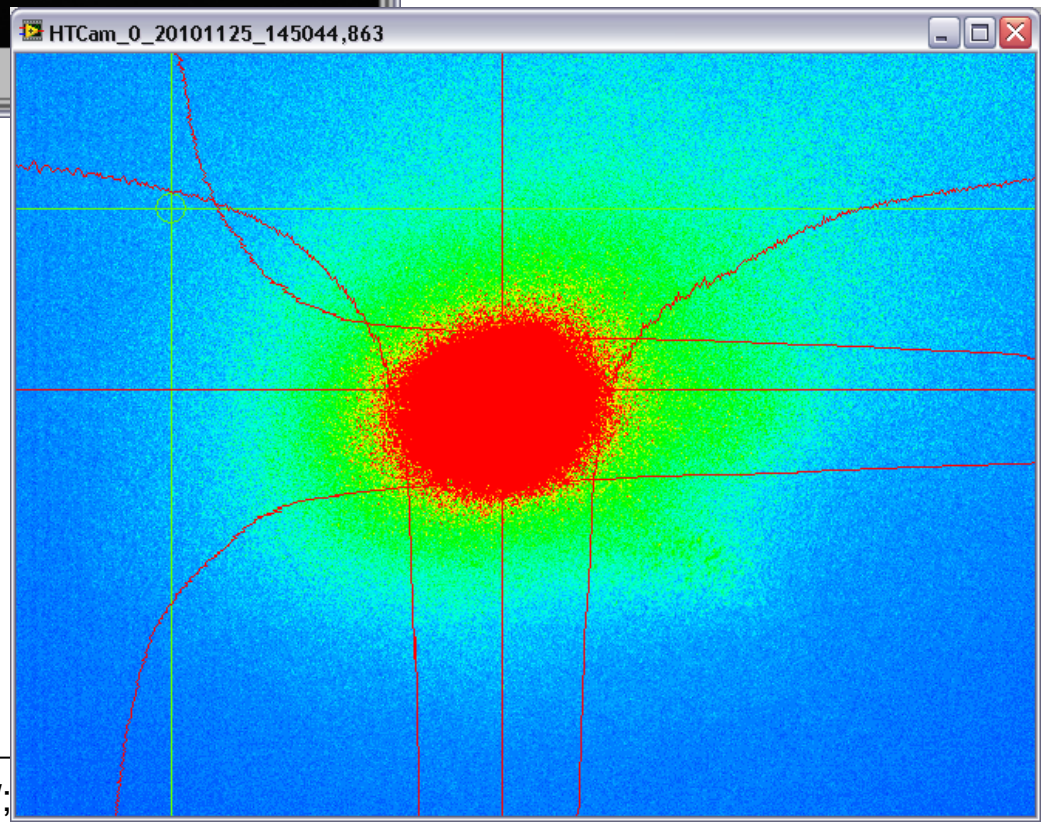


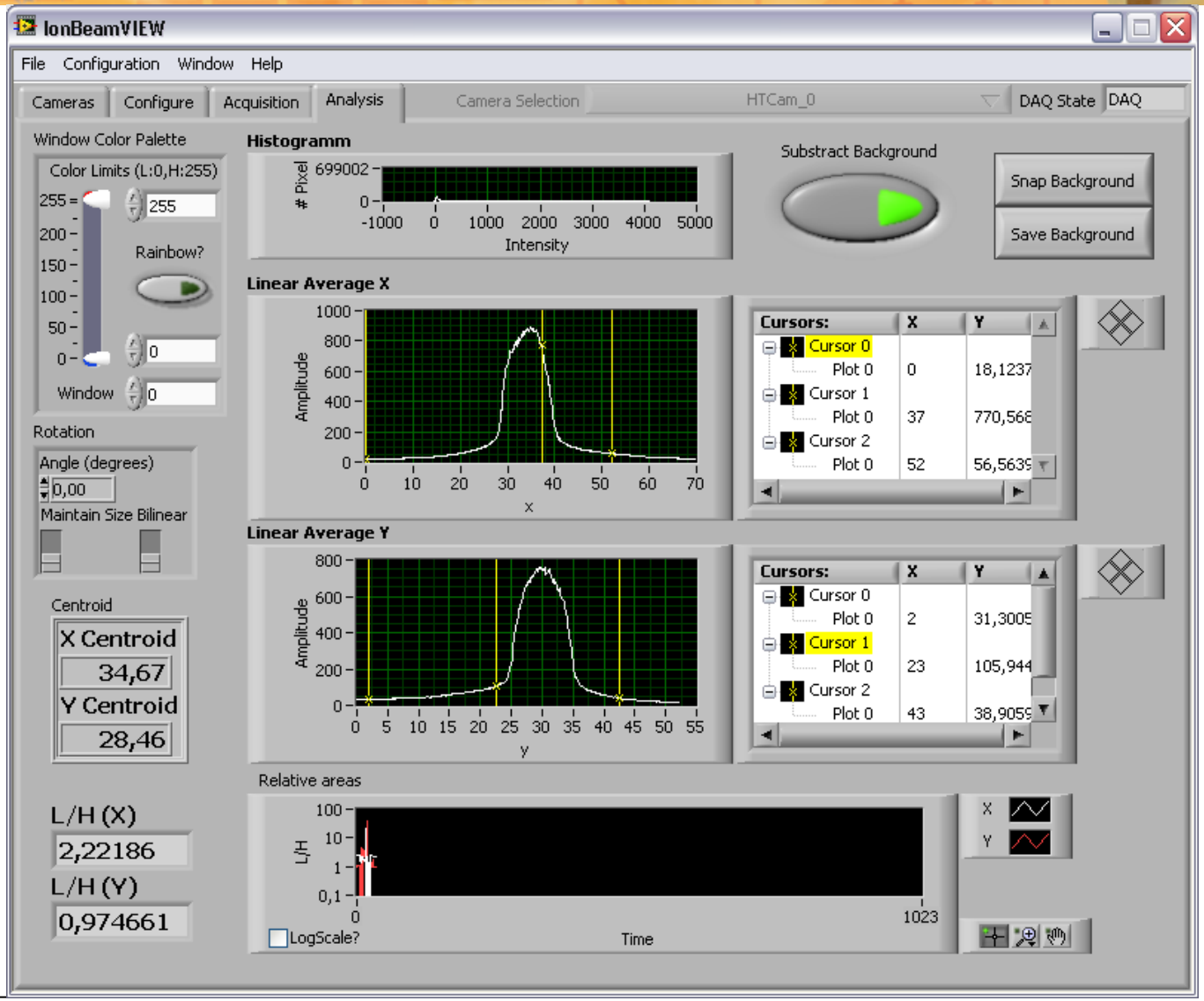
Image Browser & Analysis Overlay





- Image Browser
  1. Framegrabber
  2. USB WebCam
  3. Prosilica GC655
- Analysis Overlay
  - Custom rainbow color palette
  - H/V projected profiles
  - Set position and radius
  - Calculated centroid and radius

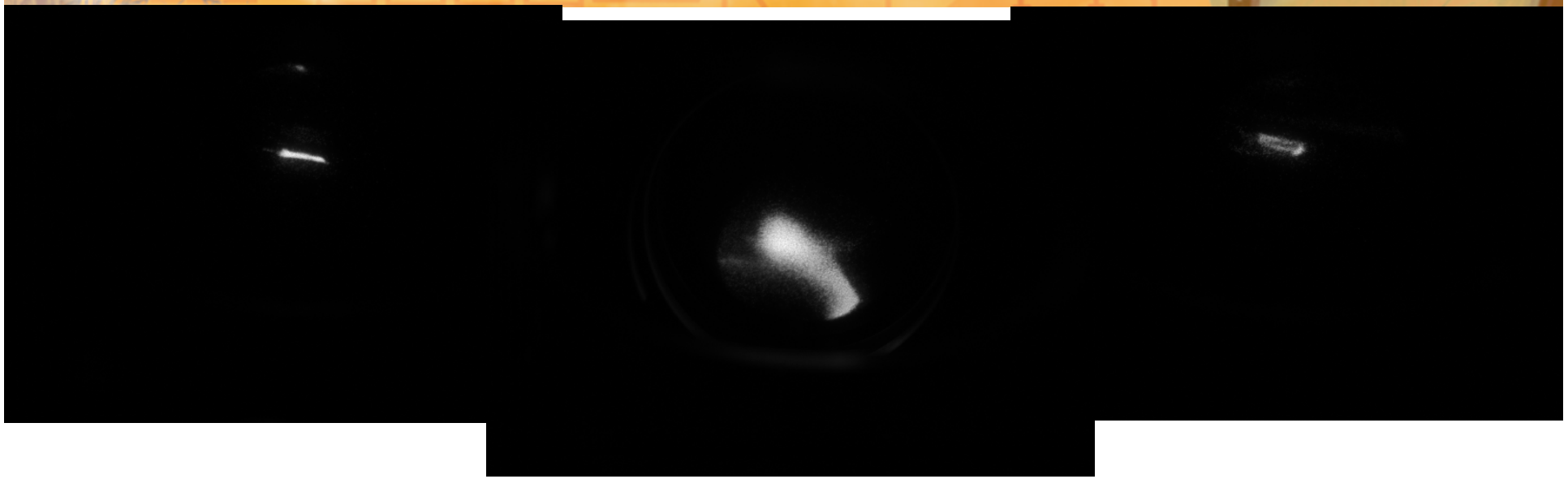
Online Analysis

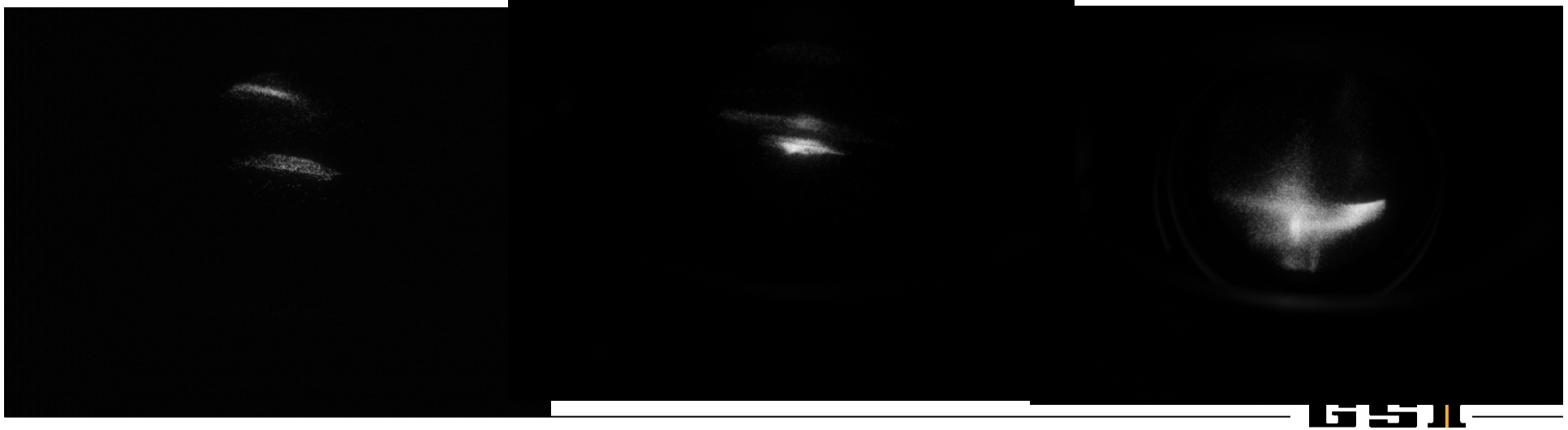


Problems - Status

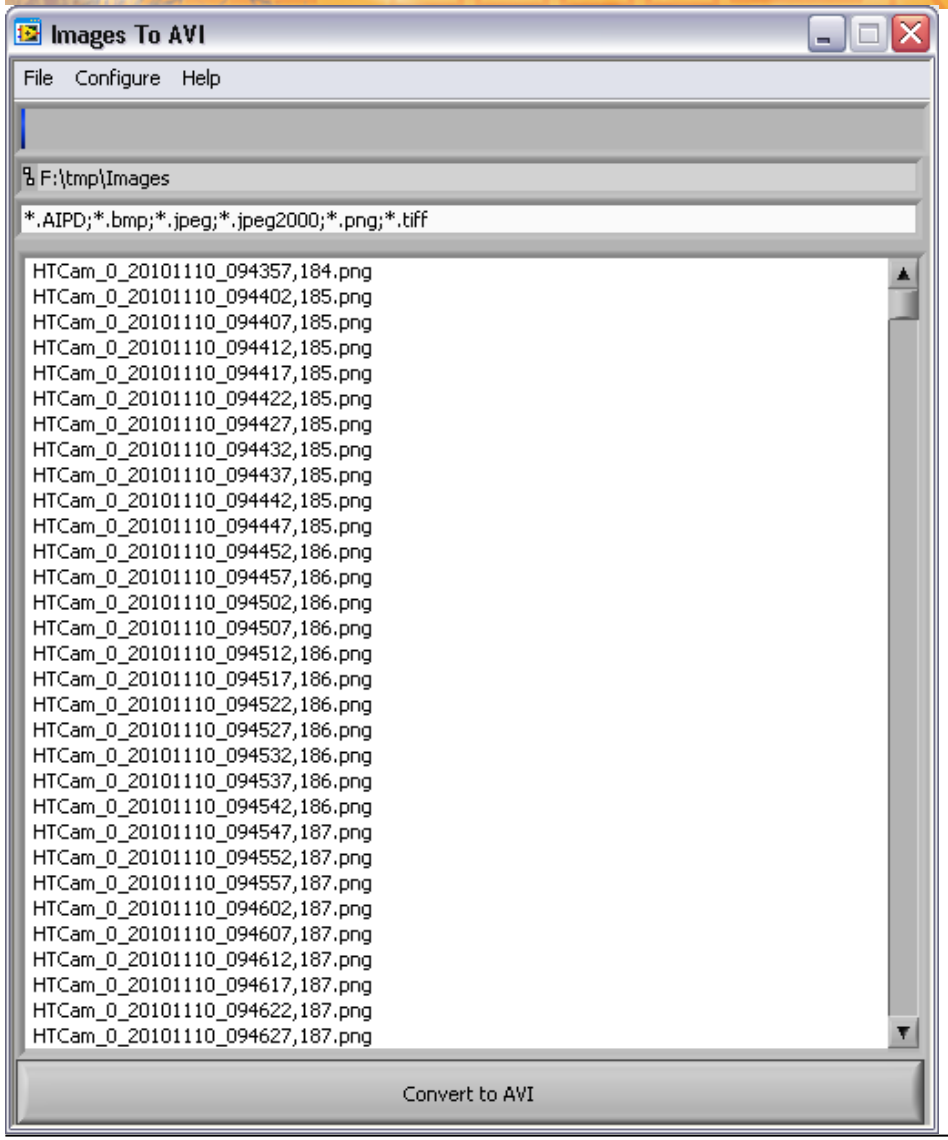
- GigE-Camera
  - Data-/Packet loss due to wrong setting for Ethernet bandwidth
    - 100MBit vs. 1000MBit
- Framegrabber class HGF_ImaqFg used in free run only
  - I have no progressive scan camera available
- IonBeamVIEW was successfully used during HITRAP beamtime in Nov. 2010
- IonBeamVIEW 0.0.0.14 available for beta test
  - \\winscratch\scratch\Brand\IonBeamVIEW
  - https://subversion.gsi.de/labview/trunk/LV2009/GPL/User/Brand/Vision/IonBeamVIEW

HITRAP Images Nov. 2010





Converter: Image To AVI



1. Menue->Select image folder
2. Select one or more image files from list.
3. First image defines the type, all selected images must be of the same image type.
   - AIPD
   - bmp
   - jpeg
   - jpeg2000
   - png
   - tiff
4. Click: Convert to AVI