**Scientific Detector Workshop 2013 (SDW 2013)**

**Scientific Program Schedule**

**As presented**

**MONDAY 7 OCTOBER**

**Session 1 – 8:30-10:30 – Introduction / Spectroscopy**

8:30-9:10 Introduction – Welcome remarks from organizers, Arcetri Observatory

9:10-9:40 Ian McLean – The Performance of MOSFIRE

9:40-10:10 Lutz Wisotzki – Imaging Spectroscopy with MUSE at the ESO-VLT: Science Drivers

10:10-10:30 Joseph Tufts – Sinistro: Imaging and Spectroscopy Cameras at LCOGT

**Morning Coffee Break – 10:30-11:00**

**Session 2 – 11:00-12:20 – Spectroscopy / Instrumentation**

11:00-11:20 Martin M. Roth – Multi-Object Spectroscopy with Deployable IFUs – a New Era in Astronomy Enabled by Detector Technologies

11:20-11:40 Darragh O’Donoghue – Novel Concentric Spectrometers

11:40-12:00 Roger Haynes – Astrophotonics

12:00-12:20 Tim Abbott – DECam: The First Year

**Lunch – 12:30-14:00**

**Session 3 – 14:00-15:40 – Observatories / Instrumentation**

14:00-14:20 Randy Campbell – W.M. Keck Observatory Update

14:20-14:40 Doug Simons – CFHT Status Report and Future Plans

14:40-15:00 Jean-Charles Cuillandre – MegaCam RED: Building on CFHT’s Strengths

15:00-15:20 Paul Jorden – The KMTNet 340 Megapixel Focal Planes

15:20-15:40 Peter Moore – “What if!” or “Big Bang Creationism”

**Afternoon Coffee Break – 15:45-16:15**

**Session 4 – 16:15-17:35 – Visible - IR Detectors**

16:15-16:35 Yoanna-Reine Nowicki-Bringuier – CMOS-visible Development status at ESA

16:35-16:55 Guy Meynants – Backside illuminated CMOS Active Pixel Sensor with Global Shutter and 84 dB Dynamic Range

16:55-17:15 Shouleh Nikzad – III-Nitrides and Silicon Detectors and Advanced Coatings for Efficient UV/Optical/NIR Systems

17:15-17:35 Vyshnavi Suntharalingam– Developments of CCD and CMOS detectors at MIT Lincoln Laboratory

**TUESDAY 8 OCTOBER**

**Session 5 – 8:30-10:30 – Visible - IR Detectors**

8:30–8:40 Morning Welcome / Update

8:40–9:10 *Harald Michaelis – CCD or CMOS – What is the Best Sensor for Planetary Exploration Missions?*

9:10–9:30 Steve Holland – Performance Improvements for Fully Depleted Charge-Coupled Devices

9:30–9:50 Yukiko Kamata – Results of Acceptance Tests of Hyper Suprime-Cam CCDs

9:50–10:10 Greg Bredthauer – STA CCD Detector, Controller, and System Developments

10:10–10:30 Jan Bosiers – An Overview of Teledyne DALSA Professional Imaging CCD Capabilities

**Morning Coffee Break – 10:30-11:00**

**Session 6 – 11:00-13:00 – Visible - IR Detectors** (with Roundtable)

11:00–11:20 Lynn Mears – RVS and RIT Demonstrate MBE/Si Detectors as a Solution for High Performance, Lower Cost SCAs for Focal Plane Mosaics

11:20–11:40 Peter Knowles – Update on SELEX Detector Technologies

11:40–12:00 James Beletic – Teledyne Imaging Sensors – Detector Update

**12:00–13:00 Curved Detector Roundtable (60 min. total)** Includes presentations by:

Olaf Iwert – Results and Potential of a Novel Curving Process

for Large Area Scientific Imagers

Barry Burke – Spherically Curved CCD Imagers for Passive Sensors

Shouleh Nikzad – Curved detectors at JPL

**Lunch 13:00-14:15**

**14:15-15:00 Museo Galileo Talk**

*Giorgio Strano – Museo Galileo: The Medici and the Hapsburg-Lorraine Collections*

**WEDNESDAY 8 OCTOBER**

**Session 7 – 8:30-10:05 – Fast Framing Detectors**

8:30-8:35 Morning Welcome / Update

*8:35-9:05 Johan Rothman – The Physics and Performance of HgCdTe APDs*

9:05-9:25 Gert Finger – NIR HgCdTe Avalanche Photodiode Arrays for Wavefront Sensing and Fringe Tracking

9:25-9:45 Don Hall – Investigation of Linear-Mode, Photon-Counting HgCdTe APDs for Astronomical Observations

9:45-10:05 Philippe Feautrier – Visible and Infrared Wavefront Sensing Detectors Review

**POSTER POPS – 10:05-10:30 – Eclectic**

**Morning Coffee Break – 10:30-11:00**

**Session 8 – 11:00-12:20 – Fast Framing Detectors**

11:00-11:20 Mark Downing – Optical Sensors for Adaptive Optics at ESO

11:20-11:40 Craig Mackay – Diffraction Limited Imaging from the Largest Ground-Based Telescopes in the Visible

11:40-12:00 Douglas Jordan – A Novel 4K×4K EMCCD Sensor for Scientific Use

12:00-12:20 Takeshi Go Tsuru – Development and Performance of Kyoto’s X-ray Astronomical SOI Pixel Sensor

**Lunch – 12:30-14:00**

**Session 9 – 14:00-15:50 – Space**

*14:00-14:30 Mark McCaughrean – NASA and ESA Focal Plane Requirements for Current and Future Space Science Missions*

14:30-14:50 Ralf Kohley – The Launch of Gaia

14:50-15:10 Alain Bardoux – Innovative Detectors for Space-Based Astronomy

15:10-15:30 Michael Regan – Maximizing Science from JWST Detectors

15:30-15:50 Rachel Anderson – Understanding Persistence: 3D Trap Map of a H2RG-S010 Imaging Sensor

**20:00 Rob Green Special Talk at Cinema Odeon**

Imaging Spectroscopy for Earth Science and Exoplanet Study

**THURSDAY 10 OCTOBER**

**Session 10 – 8:30-10:10 – High Energy Detectors**

8:30-8:40 Morning Welcome / Update

*8:40-9:10 Jean Susini – Introduction to Synchrotron Radiation Science: From the Crab Nebula to Kandinsky (presented by Marie Ruat)*

9:10-9:30 Marie Ruat – Development of CdTe-Based Photon-Counting X-ray Detectors for Synchrotron Experiments Above 30 keV

9:30-9:50 Youri Dolgorouky – R&D on a Compton Telescope for the Observation of the Crab Nebula

9:50-10:10 Fernando Pedichini – Architectures for a CMOS Imager at the Focal Plane of an ELT

**POSTER POPS – 10:10-10:30 – Focal Plane Electronics 1**

**Morning Coffee Break – 10:30-11:00**

**Session 11 – 11:00-12:00 – Focal Plane Electronics**

11:00-11:20 Bob Leach – New Generation IV Controllers for CCDs and CMOS Arrays

11:20-11:40 Armin Karcher – A Compact, Low-Power Digital CDS CCD Readout System

11:40-12:00 Hervé Lebbolo – LSST ASICs for Sensors Control and Readout

**Lunch – 12:30-14:00**

**Session 12 – 14:00-15:20 – Focal Plane Electronics**

14:00-14:20 Benoit Dupont – Prototype ASIC for Space Large Format NIR/SWIR Detector Array

14:20-14:40 Markus Loose – Lessons Learned from a Decade of SIDECAR ASIC Applications

14:40-15:00 Roger Smith – In Situ Testing of CCD and NIR Detector Controllers

15:00-15:20 Favio Bortoletto – Control System for the EUCLID-NISP Mission Infrared Focal Plane

**POSTER POPS – 15:20-15:40 – Focal Plane Electronics 2**

**Afternoon Coffee Break – 15:45-16:15**

**Session 13 – 16:15-18:00 – Focal Plane Electronics** (with Roundtable)

16:15-16:35 Paul O’Connor – System Tests of LSST Integrated Readout Chain

16:35-16:55 Simon Tulloch – Theoretical Comparison of CCD Video Processors

**17:00-18:00 Focal Plane Electronics Roundtable**

Digital Correlated Double Sampling

To ASIC, or not to ASIC, that is the question

**FRIDAY 11 OCTOBER**

**SESSION 14 – 8:30-10:00 – Detector Characterization & Optimization**

8:30-8:40 Morning Welcome / Update

8:40-9:00 Brandon Hanold – Characterization of a Large Format HgCdTe on Silicon Focal Plane Array

­­­­­­9:00-9:20 Peter Verhoeve – Characterisation of CCDs for the Euclid Visible Channel

9:20-9:40 Pierre-Elie Crouzet – Hawaii-2RG Detector Characterization at ESTEC

9:40-10:00 Michael Hoenk – Superlattice-doped Imaging Detectors: Structure, Physics and Performance

**POSTER POPS – 10:00-10:30 – Detector Characterization**

**Morning Coffee Break – 10:30-11:00**

**Session 15 – 11:00-12:20 – Detector Characterization & Optimization**

11:00-11:20 Pierre Antilogus – Effective CCD Pixel Sizes as a Function of Collected Charge

11:20-11:40 Andrew Holland – Factors Affecting Use of CCDs for Precision Astronomy

11:40-12:00 Peter Doherty – Sensor Risk Mitigation: Identifying and Retiring Sensor Related Risks to Science

12:00-12:20 Kirk Gilmore – Characterizing Optical Instrument Performance

**Lunch – 12:20-14:00**

**Session 16 – 14:00-15:20 – Detector Characterization & Wrap-up**

14:00-14:20 Derek Ives – Excess Low Frequency Noise (ELFN) and Temporal Correlation in Si:As Impurity Band Conduction Mid-IR Astronomical Detectors

14:20-14:40 William F. Hoffmann – Performance of Raytheon Aquarius 1K mid-IR Array with the Large Binocular Telescope Interferometer

14:40-15:00 Craig McMurtry – Development of Sensitive Long-wave Infrared Detector Arrays for Passively Cooled Space Missions

15:00-15:20 James Beletic, Paola Amico & Martin Roth – Workshop Wrap-up