11th International User Meeting and Summer School on Cavity Enhanced Spectroscopy
16 - 19 June 2015
Boulder, Colorado, USA

Tuesday 16 June 2015

Time	Agenda	Speaker	Lecture Title
	Registration and coffee in the NIST Main Lobby		
9:00	*Welcome*	**Steve Brown**	*Introduction to **Summer School***
9:15	Lecture 1	**Joseph Hodges**	Assessing the precision and accuracy of cavity ring-down spectroscopy measurements
10:05	*Coffee Break*		
10:20	Lecture 2	**Kevin Lehmann**	The properties of Optical Cavities and how they effect CES
11:10	Lecture 3	**Frans Harren**	Off-Axis Integrated Cavity Output spectroscopy for trace gas detection
12:00	*Lunch*		
13:00	Lecture 4	**Aleksandra Foltynowicz**	Cavity-Enhanced Optical Frequency Comb Spectroscopy
13:50	Lecture 5	**Alejandro Farinas**	Industrial Applications of Cavity-Enhanced Spectroscopy Instruments
14:40	*Coffee Break*		
14:55	Lecture 6	**Rebecca Washenfelder**	Atmospheric Field Measurements Using Cavity Enhanced Spectroscopy
15:45	*Tour Science On a Sphere at NOAA*		

Wednesday 17 June 2015

Time	Agenda	Speaker	Presentation Title
	Registration and coffee in the NIST Main Lobby		
8:30	*Welcome*	**Rebecca Washenfelder**	*Introduction to the **User Meeting***
	Morning Session Chair: Hans Osthoff		
8:40	Plenary talk	**Shailendhar Saraf**	Cavity Enhanced Molecular Spectroscopy for Developing Ultrastable Frequency Standards and Generating Frequency Combs in the Mid-IR
9:20	Invited talk	**David Chandler**	Dual Etalon Frequency Comb Spectrometer
9:45	Contributed talk	**Jerome Morville**	A Very Broadband Direct Frequency Comb - Cavity Enhanced Vernier Spectrometer
10:05	*Coffee Break*		
10:20	Contributed talk	**Garwing Truong**	Towards Fieldable Dual-Comb Spectroscopy For Greenhouse Gas Monitoring in Outdoor Air
10:40	Invited talk	**Scott Papp**	Microresonator optical frequency combs
11:05	Contributed talk	**Leonid Sheps**	Time-Resolved Broadband Cavity-Enhanced Absorption Spectroscopy: A New tool for Chemical Kinetics
11:25	Contributed talk	**Albert A. Ruth**	Laser-Induced Plasmas in Ambient Air for Incoherent Broadband Cavity-Enhanced Absorption Spectroscopy
11:45	Sponsor talk	**Brent Wheelock**	*Menlo Systems*
11:55	Sponsor talk	**Brian Siller**	*Tiger Optics*
12:00	*Lunch*		

	Afternoon Session Chair: Jong Chow		
13:00	Invited talk	**Yunfeng Xiao**	Microcavity Raman Laser and Its Application in Single-Nanoparticle Detection
13:25	Contributed talk	**Dean James**	Open-Access Optical Microcavities for Lab-on-a-Chip Spectroscopy
13:45	Contributed talk	**Meez Islam**	Bioanalytical Applications of Liquid Phase BBCEAS
14:05	Invited talk	**Sheila Rowan**	Low Noise Cavities in Interferometric Gravitational Wave Detectors
14:30	**Poster Previews (A - L)**		
14:55	**Poster Session (A - L)**		
16:55	*Lab Tours at NIST or NOAA*		
17:55	*Dinner on your own in downtown Boulder*		

Thursday 18 June 2015

Time	Agenda	Speaker	Presentation Title
8:30	*Welcome in the NIST Auditorium*		
	Morning Session Chair: Solomon Bililign		
8:35	Plenary talk	**Yinon Rudich**	Measurements of Aerosol Optical Properties using Broadband Cavity Enhanced Spectroscopy
9:15	Invited talk	**Terry Miller**	Near-Infrared Cavity Ringdown Spectroscopy of Intermediates in Complex Chemical Reactions
9:40	Contributed talk	**Guillaume Genoud**	Quantum Cascade Laser Spectroscopy for Radiocarbon Detection
10:00	Contributed talk	**Giovanni Giusfredi**	Spectroscopic detection of 14CO2: Towards Parts Per Quadrillion Sensitivity
10:20	*Coffee Break*		
10:35	Contributed talk	**Kevin Lehmann**	Combining several spectroscopic techniques, including cw-CRDS and IR-IR double resonance to analyze the first C-H overtone region of CH3D
10:55	Invited talk	**Helen Waechter**	Fiber-Loop Cavity Ring-Down Analyzer for Cryogenic Liquids
11:20	Contributed talk	**Sze Tan**	Investigation of Backscattered Wave Effects on Cavity Ring-Down Spectrometers with Ring Cavities
11:40	Contributed talk	**Laurie McHale**	Development of Open-Path Cavity Ring-Down Spectroscopy Sensors for Methane and Ammonia
12:00	Sponsor talk	**Malcolm Gray**	*Liquid Instruments*
12:10	Sponsor talk	**Thomas Kraft**	*LayerTec*
12:15	*Lunch*		
	Afternoon Session Chair: Norbert Lang		
13:00	Invited talk	**John Hall**	The realistic prospect of being able to separate the cavity and absorber resonances very strongly: expecting an optical molecular frequency standard with a stability and reproducibility at the Hz level
13:25	Contributed talk	**Aleksandra Foltynowicz**	Optical Frequency Comb Fourier Transform Spectroscopy with Resolution beyond the Path Difference Limit
13:45	Contributed talk	**Ibrahim Sadiek**	Saturation Dynamics and Working Regimes of Saturated Absorption Cavity Ringdown Spectroscopy (Sat.-CRDS)
14:05	Contributed talk	**Erin McDuffie**	The Dark Side of Cavity Ring Down - Measurements of Nocturnal Reactive Nitrogen Species, NO3 and N2O5

14:25	Contributed talk	**Roland Fleddermann**	Cavity Enhanced Amplitude Modulated Laser Absorption Spectroscopy
14:45	**Poster Previews (M - Z)**		
15:10	*Travel to NCAR Mesa Lab and poster setup*		
16:00	**Poster session (M - Z)** with drinks at NCAR Mesa Lab		
18:00	***Banquet dinner*** *at NCAR Mesa Lab*		

Friday 19 June 2015

Time	Agenda	Speaker	Presentation Title
8:30	*Welcome in the NIST Auditorium*		
	Morning Session Chair: Adam Fleischer		
8:35	Plenary talk	**Jonathan Reid**	Cavity Ringdown Spectroscopy of Single Aerosol Particles
9:15	Invited talk	**Dan Murphy**	Opening Up and Miniaturizing Cavity Enhanced Spectroscopy
9:40	Contributed talk	**Jiahao Dong**	Cavity Polarization Mode Impedance Matching Spectroscopy
10:00	Contributed talk	**Antonio Giorgini**	An Optical-Cavity Microbalance for Surface-Plasmon-Resonance Bio-Chemical Sensing
10:20	*Coffee Break*		
10:35	Contributed talk	**Andrew Freedman**	Measuring Soot Optical Properties Using Cavity Attenuated Phase Shift (CAPS) Techniques
10:55	Invited talk	**Harold Linnartz**	Tools for Molecular Astrospectroscopy: os-BBCEAS, CESAS and CRDS
11:20	Contributed talk	**Luca Ciaffoni**	Using Cavity-Enhanced Spectroscopy to Improve Healthcare: In-Airways O2 Consumption Sensing Based on OA-CEAS
11:40	Contributed talk	**Frans Harren**	Sensitivity Enhancement in Off-Axis Integrated Cavity Output Spectroscopy
12:00	Sponsor talk	**Darren Berns**	*IDEX / Advanced Thin Films*
12:!5	Sponsor talk	**Quentin Turchette**	*Research Electro-Optics, Inc.*
12:20	*Lunch*		
	Afternoon Session Chair: Hendrik Nahler		
13:10	Invited talk	**Matthew Sellars**	Cavity enhanced rephased spontaneous emission
13:35	Contributed talk	**Patrick Dupre**	Photo-Dissociation Resonances of Jet-Cooled NO2 by CW-CRDS
13:55	Contributed talk	**Dean Sheppard**	Cavity-Enhanced Methods for Optical Detection of Magnetic Field Effects in Biological Systems
14:15	Contributed talk	**James Hodges**	Advances in Sensitive, Accurate, Precise, Ion Spectroscopy through Noise Immune Cavity Enhanced Optical Heterodyne Velocity Modulation Spectroscopy
14:35	Contributed talk	**Ove Axner**	Optimum conditions for Doppler-broadened NICE-OHMS – How to reach an Allan deviation in the 10^14 cm-1 range using a tunable laser
14:55	Plenary talk	**Jun Ye**	Cavity-Enhanced Frequency Comb Spectroscopy
15:35	*Presentation of student awards*	**Hans Osthoff**	
15:45	*Final remarks and conclusion*	**Steve Brown**	

Poster Session Wednesday 17 June 2015, 3 - 5pm at NIST		
Presenter		**Abstract Title**
Ove	**Axner**	Doppler-broadened NICE-OHMS beyond the cavity-limited weak absorption condition
Solomon	**Bililign**	Measuring Aerosol Scattering and Absorption - Limitations of the Extinction-Minus-Scattering Method
Mixtli	**Campos-Pineda**	Study of the Ozonolysis of Ethene and 2,3-Dimethyl-2-Butene using Cavity Ring-down Spectroscopy
Idil	**Cazimoglu**	Cavity Enhanced Absorption Spectroscopy for the Detection of Plant Volatile Organic Compounds
Sean	**Coburn**	Measurements of diurnal variations and eddy covariance (EC) fluxes of glyoxal over the tropical Pacific Ocean during the TORERO 2012 field experiment
Sean	**Coburn**	Determining optical path lengths for aerosol-free cavity enhanced spectroscopy: theoretical calculations based on mirror characterization and Rayleigh scattering vs determination from measurements of collision induced absorption of oxygen molecules
Kirstin	**Doney**	Infrared cavity ring-down measurements of astronomically relevant cations
Patrick	**Dupre**	Noise-Immune Cavity-Enhanced Optical Heterodyne Molecular Spectrometry Modeling under Saturated Absorption
Dorothy	**Fibiger**	First Aircraft Measurements of NOy by Cavity Ring-Down Spectroscopy
Al	**Fischer**	A UV-visible Broadband Cavity Enhanced Spectrometer for Atmospheric Aerosol Extinction
Adam	**Fleisher**	Cavity Ring-Down Spectroscopy in the Quantum-Noise Limit
Aleksandra	**Foltynowicz**	Cavity-Enhanced Optical Frequency Comb Spectroscopy of High-Temperature Water in a Flame
Elizabeth	**Foreman**	High Resolution Spectroscopy of CH2OO and the Kinetics of its Reactions with Inorganic Acids
Timothy	**Gordon**	Design Of A Novel Open-Path Aerosol Extinction Cavity Ringdown Spectrometer and Data From Recent Field Deployments
James	**Hargrove**	A Portable NX and particle analyzer
Thomas	**Hausmaninger**	Doppler-broadened mid-infrared NICE-OHMS system based on an optical parametric oscillator
John	**Hoffnagle**	CRDS with cavity mode-based frequency axis for ppm-level quantitative spectroscopy
Tara	**Kahan**	Cavity-enhanced measurements of hydrogen peroxide absorption cross sections at long wavelengths: Implications for hydroxyl radical production indoors and outdoors
Jay	**Kroll**	Cavity Ring-Down Spectroscopy in Exploration of the Reactivity of Atmospheric Systems
Norbert	**Lang**	RES-Q-Trace: a mobile CEAS-based demonstrator for multiple-component trace gas detection in the MIR
Olivier	**Laurent**	ICOS ATC Metrology Lab: a facility for metrological performance assessment of prototypes and commercialized GHG analyzers
Mingyun	**Li**	Fiber Loop Supercontinuum Cavity Enhanced Absorption Spectroscopy
Elizabeth	**Lunny**	Frequency-Stabilized Cavity Ring-Down Spectroscopy of CO2 in Support of Remote Sensing

Poster Session Thursday 18 June 2015, 4 - 6pm at NCAR Mesa Lab

Presenter		Abstract Title
Georgia	**Mansell**	An in-vacuum optical parametric oscillator squeezer for gravitational wave detectors
Davide	**Mazzotti**	High-Q resonant cavities in the terahertz range: optical feedback effects on quantum cascade lasers
Hendrik	**Nahler**	CELIF: Cavity-enhanced laser-induced fluorescence
Chris	**Nichols**	Pre-excitation CRDS for Mercury
Hans	**Osthoff**	Vapor detection of nitrogen oxide containing explosives by catalytic thermal dissociation blue diode laser cavity ring-down spectroscopy
Bin	**Ouyang**	An airborne three-channel LED-based broadband cavity enhanced absorption spectrometer for measurements of atmospheric trace gases
Inga	**Piller**	A novel NIR ew-cw-CRD spectrometer for investigating heterogeneous processes at the quartz-air/water interface: Characterization and first measurements
Mary	**Rad**	Detection of S-nitrosocompunds in biological samples
Lucile	**Rutkowski**	Noise-Immune Cavity-Enhanced Optical Frequency Comb Spectroscopy
Linhan	**Shen**	Laboratory Measurements of Temperature Dependent 13C and D Kinetic Isotope Effect in The Oxidation of CH4 by O(1D) and OH
Matthew	**Smarte**	Simultaneous Kinetics and Ringdown Study of Peroxy Radical Reactions
Jean-Pierre	**van Helden**	Optical feedback cavity-enhanced absorption spectroscopy with a 3.24 μm interband cascade laser
Nick	**Wagner**	Analysis of multi-exponential decays in cavity ringdown spectroscopy
Haichao	**Wang**	Broadband absorption spectrometers using LED for the detection of NO2, NO3 and N2O5
Rebecca	**Washenfelder**	Measurements of formaldehyde using broadband cavity enhanced spectroscopy at 315 - 360 nm
Jonas	**Westberg**	Cavity-enhanced Faraday rotation spectroscopy for oxygen detection
Robert	**Wild**	Cavity ring-down system for measurement of trace gases in high vibration environments
Nick	**Yordanov**	A cyan-light-emitting diode cavity-enhanced absorption spectrometer for the measurement of reactive iodine species
Kyle	**Zarzana**	Aerosol Optical Properties Derived using Optical Spectroscopy