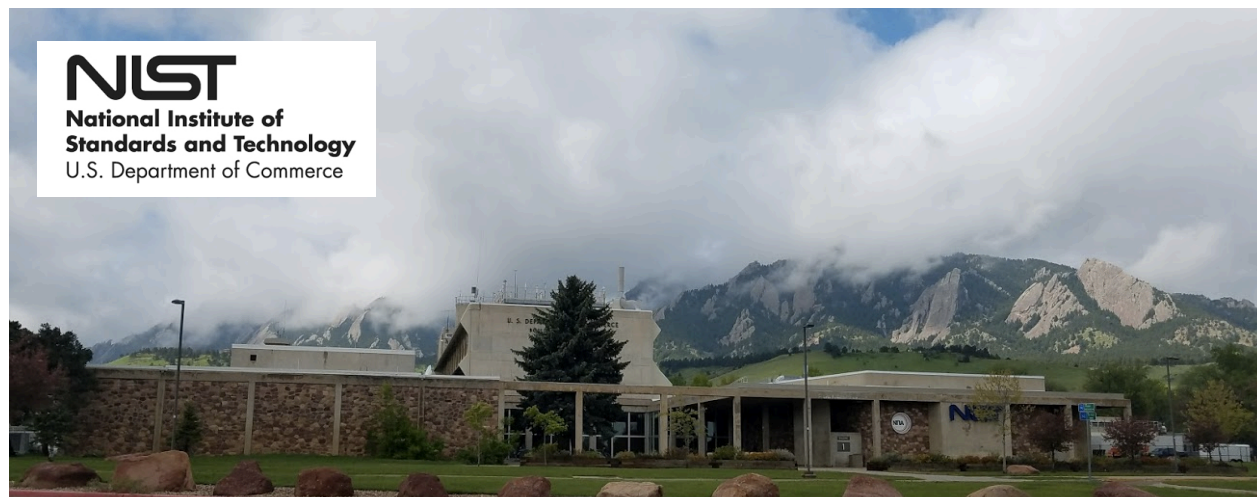GW (Gravitational Wave) Metrology Workshop
March 14, 15, 2019
NIST, Boulder, Colorado, USA

Justification and Purpose: The purpose of the Workshop is to bring together researchers and metrologists in scientific areas related to the observation of gravitational waves by interferometry. The primary interest of the metrology is detector-based laser measurements. The goal of the workshop is twofold: (1) to improve the ability of gravitational wave observatories to identify events, and (2) to improve our ability to extract source parameters, such as the distance from Earth, based on gravitational wave signals.

Benefit: The benefit of the GW Workshop is to share knowledge and experience so that our resources may be used efficiently and for maximum impact for gravitational wave science.

Registration is $115 to cover the price of food for breakfast, lunch and breaks. There is a link to lodging at the Registration site. Transportation from Denver International Airport to Boulder ranges from Bus, to shuttle, to rental car and car-hire services such as Uber (UberX is about $70).

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Agenda:

Thurs AM Intro (9-9:30):
- 15-30 min. Structure of the CCPR/BIPM, overview of "EUROMET Comparison Project 156" results, goals of this workshop, introduction of participants – John Lehman (NIST Boulder)

Thurs AM 1 (9:30-10:30) GW Astronomy and Technology
- 30 min. GW Astronomy results to date and prospects – David Shoemaker (MIT)
- 30 min. Current and future GW detectors – sensitivity they achieve and how they do it – Stefan Hild (Univ. Glasgow)

Thurs AM 2 (11-12:30) Comparison of Radiant Power Calibration at the NMIs
- 20 min. The international comparison on laser power 2005 – 2007 – Stefan Kück (PTB, Germany)
- 55 min. Statistical Treatment of Multiple Results of the Same Measurand – Amanda Koepke, (NIST, Boulder)

Thurs PM 1 (2-3:30) Calibration of GW detectors
- 30 min. Astrophysical requirements and benefits of calibration accuracy – Daniel Holz (Univ. Chicago)
- 20 min. Methods for calibrating km-scale interferometers – Evan Goetz (Univ. Michigan)
- 20 min. LIGO Photon Calibrators - Sudarshan Karki (Univ. Oregon)

Thurs PM 2 (4-5:30) Other topics
- 20 min. Integrating Spheres, Chris Durell (Labsphere)
- 15 min. LIGO Power Standards and Relative GW Detector Calibration Strategy– Yannick Lecoeuche (LIGO Hanford Observatory)

Thursday evening: Social Event at "The Hilton Garden Inn" 2701 Canyon Blvd, Boulder

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Friday AM 1 (9-10:30) Status of GW observatory calibration
- 15 min. GEO600 Calibration Status – Jim Lough (Albert Einstein Institute)
- 15 min. KAGRA Calibration Status – Darkhan Tuyenbayev (Academia Sinica)
- 15 min. LIGO Calibration Status – Jeff Kissel (LIGO Hanford Observatory)
- 15 min. LIGO India Status – Shivaraj Kandhasamy (ICRR)
- 20 min. KAGRA Gravitational Calibrator (Gcal) – Yuki Inoue (National Central University, Taiwan)
- 15min. LIGO Newtonian Calibrator (Ncal) implementation status – Jeff Kissel for Univ. Wash. Group (LIGO Hanford Observatory)

Friday AM2 (11-12:00) National Metrology Institute talks
- 15 min. Laser Power meter calibrations at LNE, Jimmy Dubard, (LNE, France)
- 15 min. Laser Power Meter Calibrations at NIST, Matt Spidell, (NIST, Boulder)
- 15 min. Laser Power Meter Calibrations at PTB, Stefan Kück, (PTB, Germany)
- 15 min. Toward the Next Generation of Standards for Laser Power Measurements, Michelle Stephens, (NIST, Boulder)

Friday PM 1 (2-3:30)
- 60 to 90 min. Discussion of plans for comparative study, other roundtable discussions, etc.

Closeout 3:30
- 15 min. Overview of workshop – Michelle Stephens (NIST Boulder)
- Closing remarks – Rick and John

Optional lab tours and break outs

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DIRECTIONS:

The meeting will be convened in Building 81, Room 1A116.

You will need to check in at the NIST visitor's center.

On day one, we will have someone at the guard/visitor center to direct you to Building 81 and the meeting room.

Parking and Bldg 81

Arrive here