

# IVS VLBI2010 Workshop on Future Radio Frequencies and Feeds (FRFF)

*Wetzell/Höllenstein, Germany*

## PROGRAM

*Wednesday, March 18, 2009*

**08:30** **Bus transport** from Bad Kötzing (Großparkplatz) to Höllenstein

### **Part 1: Introduction**

**09:00** **Welcome and Workshop Goals**

- (1) *Welcome to Wetzell/Höllenstein and General Logistics* [Hayo Hase]
- (2) *Workshop Goals* [Bill Petrachenko/Brian Corey]
- (3) *Workshop Structure* [Dirk Behrend]

### **Part 2: Broadband Delay** (Chair: Bill Petrachenko)

**09:20** (*Tutorial*) **An Overview of VLBI2010 Frequency Requirements** [Bill Petrachenko]

- 10:00** (1) **Proof-of-Concept Signal Chain** [Arthur Niell]  
(2) **VLBI2010 Proof-of-Concept System Demonstration** [Arthur Niell]

**10:30** **Coffee Break**

- 11:00** (3) **K/Ka-Band Options** [Arthur Niell]  
(4) **Thoughts on the Design of a WVR for the Twin Telescopes at Wetzell** [Alan Roy]

**11:25** **Group Discussion**

### **Part 3: Feeds** (Chair: Brian Corey)

**11:50** (*Tutorial*) **Characterization of Feeds for Radio Telescopes** [Per-Simon Kildal]

**12:30** **Lunch Break**

- 13:30** (1) **The Proof-of-Concept VLBI2010 Feed and its Characteristics** [Chris Beaudoin]  
(2) **The QSC Feed: A Quasi-Self Complementary Ultrawide Band Feed** [German Cortes]  
(3) **The NRAO Inverted Conical Sinuous Feed** [Brian Corey]  
(4) **Electrical Design of a Cooled 2-14 GHz Eleven Feed for SKA and VLBI2010** [Per-Simon Kildal]  
(5) **Combination Feeds** [Per-Simon Kildal]  
(6) **Numerical Optimization of log-Period Antennas by Using Embedded log-periodically Scaled S-Parameters Evaluated from Truncated Arrays** [Jian Yang]  
(7) **Cryogenic and Mechanical Design for the Eleven Feed** [Leif Helldner]

(8) **Evaluation of a Radio Telescope Using a Quad-ridge Horn Antenna on Geodetic VLBI** [Atsutoshi Ishii]

**15:30 Coffee Break**

**16:00 (9) CAYAC: The Centro Astronómico de Yebes Anechoic Chamber from 2 to 120 GHz**  
[Felix Tercero]

(10) **Evaluation of Suitable Feed Systems for High Bandwidth** [Willi Göldi]

**16:30 Group Discussion**

#### **Part 4: Polarization** (Chair: Arthur Niell)

**17:00 (Tutorial) Polarization Issues** [Brian Corey]

**17:40 (1) Conversion from Linear to Circular Polarization with the dBBC** [Koyel Das]

**17:55 Group Discussion**

**18:30 End Discussion**

**19:00 Bus transport** from Höllenstein to Bad Kötzting (Lindner)  
Dinner on your own

**22:30 Bus transport** from Bad Kötzting (Lindner) to Höllenstein

*Thursday, March 19, 2009*

**08:30 Bus transport** from Bad Kötzting (Großparkplatz) to Höllenstein

#### **Part 5: Broadband Receiver Design** (Chair: Tom Clark)

**09:00 (Tutorial) Broadband Receiver** [Tom Clark]

**09:40 (1) VLBI2010 Phase Calibration Signal Generator and System** [Chris Beaudoin]

(2) **Multi-octave Balanced Low Noise Amplifier for Radioastronomy Cryogenic Receivers** [Juan Daniel Gallego]

(3) **Implementation IF over Fiber for Onsala Space Observatory** [Leif Helldner]

**10:30 Coffee Break**

**11:00 Group Discussion**

#### **Part 6: Radio Frequency Interference** (Chair: Gino Tuccari)

**11:50 (Tutorial) Interference at a VLBI Station: Analysis and Mitigation** [Gino Tuccari]

**12:30 Lunch Break**

**13:30 (1) CRAF, Known Problems of RFI in VLBI at 2–40 GHz** [Roberto Ambrosini]

(2) **Useful RFI: Holography** [Tom Clark]

(3) **Detected Interferences at S-band from the 40-m Radiotelescope Servo System** [José Antonio López-Fernández]

(4) **VLBI2010: Frequency Coverage and RFI Observations at Effelsberg** [Reinhart Keller]

**14:45 Group Discussion**

**15:15 Coffee Break**

## **Part 7: New VLBI Observation Styles (Chair: Bill Petrachenko)**

**15:45 (Tutorial) The Need for GNSS Frequencies and a Small Reference Antenna** [Bill Petrachenko]

**16:25 (1) Space Science Applications with the VLBI2010 System** [Sergei Pogrebenko]

(2) **Concepts for Remote Control of VLBI Telescopes and for the Integration of New VLBI2010 Devices into the Field System** [Alexander Neidhardt]

(3) **Station Ancillary Data Logging and Access** [Tom Clark]

(4) **Reference Antenna, Another View** [Tom Clark]

(5) **A Introduction to the MARBLE Compact VLBI System** [Atsutoshi Ishii]

(6) **Are there Possibilities to Observe GNSS Signals with VLBI2010?** [Vincenza Tornatore]

**18:00 Group Discussion**

**18:30 End Discussion**

**20:00 Workshop Dinner at Miethaners**

**22:30 Bus transport** from Höllenstein to Bad Kötzting (Großparkplatz)

*Friday, March 20, 2009*

**08:30 Bus transport** from Bad Kötzting (Großparkplatz) to Höllenstein

## **Part 8: VLBI2010 Projects (Chair: Hayo Hase)**

**09:00 (1) AuScope Status** [Jim Lovell]

(2) **A Glance at VLBI2010 from Russia** [Alexander Ipatov]

(3) **Twin Telescope Wettzell (TTW)** [Hayo Hase]

(4) **Status of Red Atlántica de Estaciones Geodinámicas y Espaciales (RAEGE)** [José Antonio López-Fernández]

(5) **Initial Steps at Ny-Ålesund** [Bjørn Engen]

## **Part 9: Recommendations to the IVS Directing Board (Chair: Bill Petrachenko)**

**10:15 Group Discussion**

**10:25 Workshop Group Photo**

**10:30 Coffee Break**

**11:00 Group Discussion**

**12:15 Concluding Remarks [Bill Petrachenko] and Adjourn Workshop**

**12:30 Lunch on your own**

**14:30 Bus transport** from Höllenstein to the Geodetic Observatory Wettzell

**15:00 Tour of the Geodetic Observatory Wettzell**

**17:00 Bus transport** from the Geodetic Observatory Wettzell to Miethaner and Bad Kötzing  
(Großparkplatz)