

# **Beampipes for Gravitational Wave Telescopes 2023**

## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## Welcome and motivation

*Monday, 27 March 2023 09:00 (10 minutes)*

**Presenter:** JIMENEZ, Jose Miguel (CERN)

**Session Classification:** Monday morning

Contribution ID: 2

Type: **not specified**

## **Next generation Gravitational Wave Observatories and vacuum S&T as a key for their success**

*Monday, 27 March 2023 09:10 (20 minutes)*

**Primary author:** ZUCKER, M. (MIT-LIGO (US))

**Presenter:** ZUCKER, M. (MIT-LIGO (US))

**Session Classification:** Monday morning

Contribution ID: 3

Type: **not specified**

## **Einstein Telescope: status of the project, planning and requirements for the beampipe vacuum system**

*Monday, 27 March 2023 10:00 (30 minutes)*

**Presenter:** WERNEKE, Patrick (Nikhef National institute for subatomic physics (NL))

**Session Classification:** Monday morning

Contribution ID: 4

Type: **not specified**

## **Cosmic Explorer: status of the project, planning and requirements for the beampipe vacuum system**

*Monday, 27 March 2023 09:30 (30 minutes)*

**Presenter:** FEICHT, Jon (Caltech)

**Session Classification:** Monday morning

Contribution ID: 5

Type: **not specified**

## **Experience with the present vacuum systems for GWT: LIGO, Virgo, KAGRA, GEO600**

*Monday, 27 March 2023 10:50 (35 minutes)*

**Primary author:** GRADO, Aniello (INAF/INFN)

**Presenter:** GRADO, Aniello (INAF/INFN)

**Session Classification:** Monday morning

Contribution ID: 6

Type: **not specified**

## **Summary of the 2019 Livingston workshop and proposed research topics**

*Monday, 27 March 2023 11:25 (30 minutes)*

**Presenter:** DYLLA, Fred

**Session Classification:** Monday morning

Contribution ID: 7

Type: **not specified**

## **Materials and their production processing for ET's beampipes**

*Monday, 27 March 2023 14:10 (25 minutes)*

**Primary author:** PEREZ FONTENLA, Ana Teresa (CERN)

**Presenter:** PEREZ FONTENLA, Ana Teresa (CERN)

**Session Classification:** Monday afternoon



Contribution ID: 8

Type: **not specified**

## **Microstructure of Mild Steels and Potential for Magnetite as a Passive Coating in CE**

*Monday, 27 March 2023 13:35 (35 minutes)*

**Presenter:** HENKEL, D. (LIGO Consultant)

**Session Classification:** Monday afternoon

Contribution ID: 9

Type: **not specified**

## Design of beampipes for GWT

*Monday, 27 March 2023 14:35 (40 minutes)*

**Presenter:** DELEGLISE, Guillaume Julien (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Monday afternoon

Contribution ID: 10

Type: **not specified**

## **Design of optical baffles and their integration in beampipes**

*Monday, 27 March 2023 16:40 (20 minutes)*

**Presenter:** MARTINEZ-PEREZ, Mario (The Barcelona Institute of Science and Technology (BIST) (ES))

**Session Classification:** Monday afternoon

Contribution ID: 11

Type: **not specified**

## **Manufacturing and welding options**

*Monday, 27 March 2023 16:00 (20 minutes)*

**Primary author:** FAVRE, Gilles (CERN)

**Presenter:** FAVRE, Gilles (CERN)

**Session Classification:** Monday afternoon

Contribution ID: 12

Type: **not specified**

## **Options for surface finishing of beampipes for gravitational wave telescopes**

*Monday, 27 March 2023 17:00 (20 minutes)*

**Primary author:** MARQUES ANTUNES FERREIRA, Leonel (CERN)

**Presenter:** MARQUES ANTUNES FERREIRA, Leonel (CERN)

**Session Classification:** Monday afternoon

Contribution ID: 13

Type: **not specified**

## Cost assessment guidelines

*Wednesday, 29 March 2023 09:20 (20 minutes)*

**Presenter:** Dr FERREIRA SOMOZA, Jose Antonio (CERN)

**Session Classification:** Wednesday morning

Contribution ID: 14

Type: **not specified**

## Summary T1 : Material choice and processing

*Wednesday, 29 March 2023 09:40 (30 minutes)*

**Co-authors:** HENKEL, Daniel (LIGO Consultant); Dr SGOBBA, Stefano (CERN)

**Presenters:** HENKEL, Daniel (LIGO Consultant); Dr SGOBBA, Stefano (CERN)

**Session Classification:** Wednesday morning

Contribution ID: 15

Type: **not specified**

## **Summary T2 : Design, manufacturing, post-manufacturing treatments, QA and assembly**

*Wednesday, 29 March 2023 10:35 (30 minutes)*

**Co-author:** DELEGLISE, Guillaume Julien (Centre National de la Recherche Scientifique (FR))

**Presenters:** GARION, Cedric (CERN); DELEGLISE, Guillaume Julien (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Wednesday morning



Contribution ID: 16

Type: **not specified**

## **Summary T3 : Pumping system, valves, sectorisation and bakeout**

*Wednesday, 29 March 2023 11:05 (30 minutes)*

**Co-authors:** PASQUALETTI, Antonio (EGO-Virgo); BREGLIOZZI, Giuseppe (CERN)

**Presenters:** PASQUALETTI, Antonio (EGO-Virgo); BREGLIOZZI, Giuseppe (CERN)

**Session Classification:** Wednesday morning

Contribution ID: 17

Type: **not specified**

## **Summary T4: Assembly procedures and bakeout.**

**Presenters:** WERNEKE, Patrick (Nikhef National institute for subatomic physics (NL)); CRUIK-SHANK, Paul (CERN)

**Session Classification:** Wednesday morning

Contribution ID: **18**

Type: **not specified**

## Conclusions & wrap-up

*Wednesday, 29 March 2023 11:35 (25 minutes)*

**Session Classification:** Wednesday morning

Contribution ID: 19

Type: **not specified**

## **A review of recent outgassing studies on mild and stainless steels**

*Tuesday, 28 March 2023 09:00 (20 minutes)*

**Presenter:** FEDCHAK, James

**Session Classification:** Tuesday morning

Contribution ID: 20

Type: **not specified**

## **Vacuum measurements of materials and coatings for GWD beampipes**

*Tuesday, 28 March 2023 09:20 (20 minutes)*

**Primary author:** WEVERS, Ivo (CERN)

**Presenter:** WEVERS, Ivo (CERN)

**Session Classification:** Tuesday morning

Contribution ID: 21

Type: **not specified**

## **Sectorisation, pumping system, commissioning and operation of ET beampipes**

*Tuesday, 28 March 2023 09:40 (40 minutes)*

**Primary author:** SCARCIA, Carlo (Rheinisch Westfaelische Tech. Hoch. (DE), CERN)

**Presenter:** SCARCIA, Carlo (Rheinisch Westfaelische Tech. Hoch. (DE), CERN)

**Session Classification:** Tuesday morning

Contribution ID: 23

Type: **not specified**

## **Cryopumps at the extremities of the beampipes: design and performance**

*Tuesday, 28 March 2023 10:40 (20 minutes)*

**Presenter:** HANKE, Stefan (KIT-ITEP)

**Session Classification:** Tuesday morning

Contribution ID: 24

Type: **not specified**

## **Leak Detection: from component production to system installation.**

*Tuesday, 28 March 2023 11:20 (20 minutes)*

**Primary author:** CRUIKSHANK, Paul (CERN)

**Presenter:** CRUIKSHANK, Paul (CERN)

**Session Classification:** Tuesday morning



Contribution ID: 25

Type: **not specified**

## The ET pilot sector at CERN

*Tuesday, 28 March 2023 12:00 (20 minutes)*

**Presenter:** HANSEN, Jan (CERN)

**Session Classification:** Tuesday morning

Contribution ID: 26

Type: **not specified**

## **Dust in the beampipe: contribution to noise.**

*Tuesday, 28 March 2023 11:00 (20 minutes)*

**Presenter:** MOSCATELLO, Andrea (University of Padua)

**Session Classification:** Tuesday morning

Contribution ID: 27

Type: **not specified**

## **Installation and logistics (manufacturing facility, storage, transport, timeline)**

*Tuesday, 28 March 2023 11:40 (20 minutes)*

**Primary author:** SCIBILE, Luigi (CERN)

**Presenter:** SCIBILE, Luigi (CERN)

**Session Classification:** Tuesday morning

Contribution ID: 28

Type: **not specified**

## **Topical discussion T1: Material choice and processing**

*Tuesday, 28 March 2023 14:00 (1h 30m)*

**Session Classification:** Tuesday Afternoon Parallel Session: Material choice and processing

Contribution ID: 29

Type: **not specified**

## Coffee break

**Session Classification:** Tuesday Afternoon Parallel Session: Material choice and processing

Contribution ID: **30**

Type: **not specified**

## **Topical discussion T1: Material choice and processing**

*Tuesday, 28 March 2023 16:00 (1h 30m)*

**Session Classification:** Tuesday Afternoon Parallel Session: Material choice and processing

Contribution ID: 31

Type: **not specified**

## Summary session

**Session Classification:** Tuesday Afternoon Parallel Session: Material choice and processing

Contribution ID: 32

Type: **not specified**

## **Topical discussion T2: Design, manufacturing, post-manufacturing treatment, QA and assembly**

*Tuesday, 28 March 2023 14:00 (1h 30m)*

**Session Classification:** Tuesday Afternoon Parallel Session: Design, manufacturing, post-manufacturing treatment, QA and assembly



Contribution ID: 33

Type: **not specified**

## **Topical discussion T2: Design, manufacturing, post-manufacturing treatment, QA and assembly**

*Tuesday, 28 March 2023 16:00 (1h 30m)*

**Session Classification:** Tuesday Afternoon Parallel Session: Design, manufacturing, post-manufacturing treatment, QA and assembly

Contribution ID: 34

Type: **not specified**

## Summary session

**Session Classification:** Tuesday Afternoon Parallel Session: Design, manufacturing, post-manufacturing treatment, QA and assembly

Contribution ID: 35

Type: **not specified**

## **Topical discussion T3: Pumping system, valves, sectorisation and bakeout**

*Tuesday, 28 March 2023 14:00 (1h 30m)*

**Presenter:** BREGLIOZZI, Giuseppe (CERN)

**Session Classification:** Tuesday Afternoon Parallel Session: Pumping system, valves, sectorisation and bakeout

Contribution ID: 36

Type: **not specified**

## **Topical discussion T3: Pumping system, valves, sectorisation and bakeout**

*Tuesday, 28 March 2023 16:00 (1h 30m)*

**Presenter:** BREGLIOZZI, Giuseppe (CERN)

**Session Classification:** Tuesday Afternoon Parallel Session: Pumping system, valves, sectorisation and bakeout

Contribution ID: 37

Type: **not specified**

## Summary session

**Session Classification:** Tuesday Afternoon Parallel Session: Pumping system, valves, sectorisation and bakeout

Contribution ID: **38**

Type: **not specified**

## Topical discussions

**Session Classification:** Tuesday Afternoon Parallel Session: Assembly procedures and bake-out.

Contribution ID: 39

Type: **not specified**

## Topical discussions

**Session Classification:** Tuesday Afternoon Parallel Session: Assembly procedures and bake-out.

Contribution ID: 40

Type: **not specified**

## Summary session

**Session Classification:** Tuesday Afternoon Parallel Session: Assembly procedures and bake-out.



Contribution ID: 41

Type: **not specified**

## Topical discussions

**Session Classification:** Monday Parallel session; Material choice and processing

Contribution ID: 42

Type: **not specified**

## Topical discussions

**Session Classification:** Monday Parallel session: Design, manufacturing and post-production treatments

Contribution ID: 43

Type: **not specified**

## Topical discussions

**Session Classification:** Monday Parallel session: Pumping system, valves and sectorisation

Contribution ID: 44

Type: **not specified**

## Topical discussions

**Session Classification:** Monday Parallel session: Assembly procedures and bakeout.

Contribution ID: 46

Type: **not specified**

## Control systems

*Wednesday, 29 March 2023 09:00 (20 minutes)*

**Presenter:** PIGNY, Gregory (CERN)

**Session Classification:** Wednesday morning

Contribution ID: 47

Type: **not specified**

## **Beampipe Vacuum Studies for Cosmic Explorer**

**Session Classification:** Monday morning

Contribution ID: 48

Type: **not specified**

## **Beampipe Vacuum Studies in the ET collaboration**

*Monday, 27 March 2023 11:55 (20 minutes)*

**Presenter:** VAN REMORTEL, Nick (University of Antwerp (BE))

**Session Classification:** Monday morning

Contribution ID: 49

Type: **not specified**

## **Vacuum Studies for Beampipe at NIKHEF**

**Session Classification:** Monday morning



Contribution ID: 50

Type: **not specified**

## **CERN mandate for GWT beampipe studies**

**Session Classification:** Monday afternoon

Contribution ID: 51

Type: **not specified**

## **On-site production of quasi-continuous UHV pipes**

*Monday, 27 March 2023 16:20 (20 minutes)*

**Presenter:** PURRIO, Marion (FEF Aachen)

**Session Classification:** Monday afternoon

Contribution ID: 52

Type: **not specified**

# **Vacuum challenges for next generation Gravitational Wave Telescopes**

*Monday, 27 March 2023 15:40 (20 minutes)*

**Presenter:** WEISS, Rainer

**Session Classification:** Monday afternoon

Contribution ID: 53

Type: **not specified**

## Introduction to topic discussions

*Tuesday, 28 March 2023 12:20 (10 minutes)*

**Presenter:** CHIGGIATO, Paolo (CERN)

**Session Classification:** Tuesday morning