

# In memoriam Jürgen Ehlers



What the gravitational wave group in  
Garching owes Jürgen Ehlers

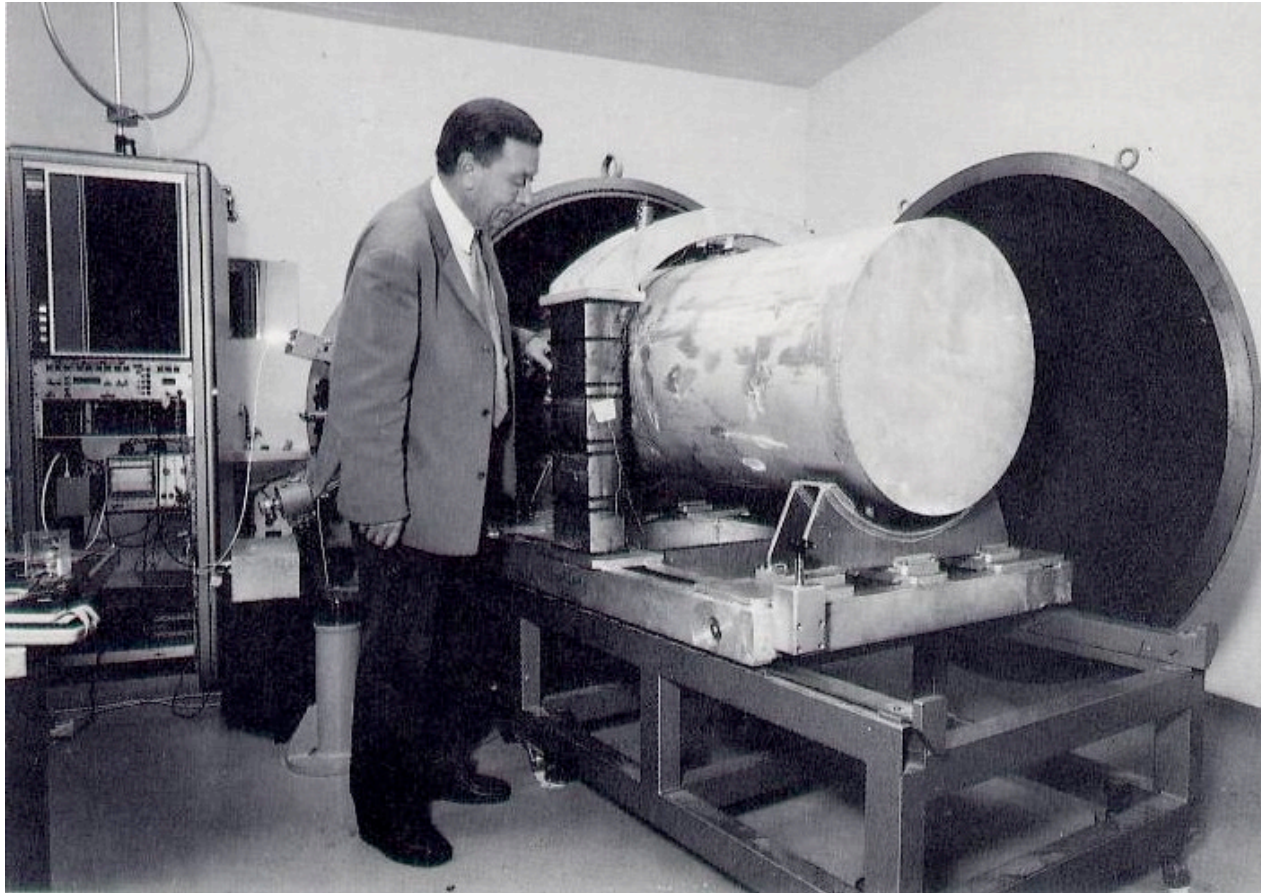
# The year 1971

- Joseph Weber's claims of having detected gravitational waves shattered astrophysical beliefs
- An experimental verification or falsification became essential
- Jürgen Ehlers joined the Max-Planck-Institut für Astrophysik

# The years 1971 - 1975

- The astrophysical interest (Friedrich Meyer, H.U.Schmidt) spurred the motivation to engage in a scrutinizing review of Weber's findings
- The group under Heinz Billing started to copy Weber's experiments
- The relativistic group with Jürgen Ehlers provided the theoretical insight into what phenomena to expect

# The years 1971 - 1975



Heinz Billing with the Garching GW detector, modelled after Weber's aluminum cylinders

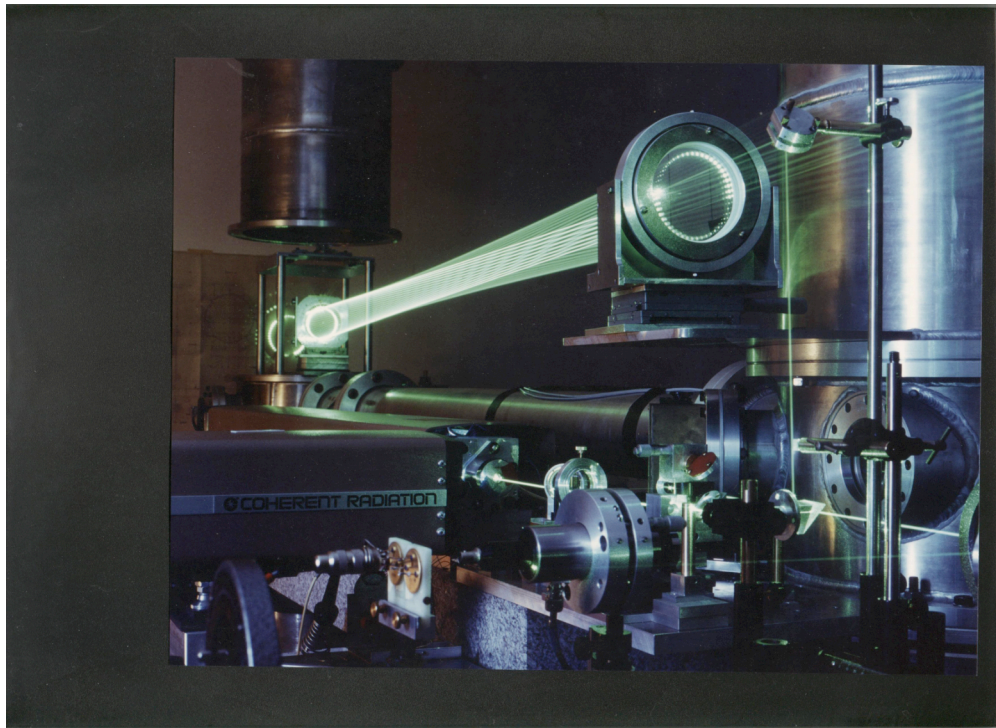


# The years 1971 - 1975

- The Garching detector, together with one built at Frascati, Italy, went into coincident operation
- They produced the longest, most sensitive test of Weber's claims with room temperature detectors
- The analysis of the data (Kafka, Meyer, Schnupp) disproved the Weber claims

# The years since 1975

- The negative result made more sensitive detectors mandatory
- Heinz Billing made the (wise) move to turn to laser interferometry (Rai Weiss, MIT)



Multiple beam reflections in an optical delay line for the 3 m detector in Munich/Garching

Ehlers gave the analysis of how GWs interact with the laser beams

# The years since 1979

- The move of the MPA to Garching allowed a larger detector: the 30 m prototype
- It became the world's most sensitive detector, and many novel detection schemes were invented in its operation

# The years since 1982

- After Billing's retirement the research was actively continued, now under the auspices of the Max-Planck-Institut für Quantenoptik
- The success of the 30 m detector made a proposal for a km sized detector realistic
- The theoretical underpinning was provided by Kafka, Schutz, and Ehlers
- In some troubled political phases, we found a fatherly mentor in Jürgen Ehlers
- In 1990, Karsten Danzmann became the leader of the group, a very fortunate turn of events

# The new Millennium

- Jürgen Ehlers was the founding father of the new Max-Planck-Institut für Gravitationsphysik, here in Potsdam/Golm, the Albert-Einstein-Institut
- Danzmann's group in Hannover, earstwhile the „Außenstelle Hannover of the MPQ“, became a full-fledged institute inside the „AEI“
- The world-wide renown that the Hannover group enjoys would not have been possible without the backing of the institute that Jürgen Ehlers founded.



# May 2008

- We, the Garching GW group, pay tribute to a great scientist and a friend of our research



Heinz Billing  
Albrecht Rüdiger  
Roland Schilling  
Walter Winkler