

# KBTM

## Welcome and Introduction

Ian A. Robinson, NPL

18 November 2025



**Kibble Balance Technical Meeting**

**18 November 2025, BIPM**

# Welcome to the 2025 Kibble Balance Technical Meeting (KBTM) at BIPM



**Thanks to our hosts:**

Dr Hao Fang

Ms Johanne Flament

Dr Martin J.T. Milton

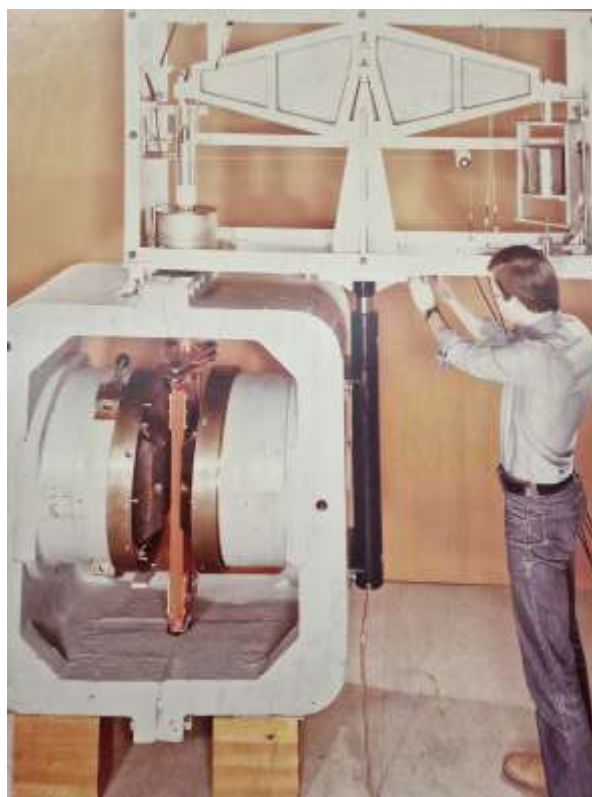
Dr Annette Koo

Dr Michael Stock



# Distant Past

This year is the 50<sup>th</sup> anniversary of the invention of the Kibble balance by Bryan Kibble



# Then until now

NIST built their version of the balance

The Kibble balance contributed to the setting of the 1990 conventional value of the Josephson constant  $K_{J-90}$ .

The Quantum Hall Effect was discovered.

This allowed those working on the Kibble balance to consider working towards the redefinition of the kilogram.

It was an extremely large undertaking.





# Then until now



**The IPK was the standard of mass for the world from 1889.**

**After considerable work, both from Kibble Balances and XRCD, in 2019 the kilogram was redefined.**

**Mass is now defined in terms of a fundamental constant, but the work of the Kibble balance has not finished.**

**Many laboratories now work on balances based on the Kibble principles:**

**BIPM, KRISS, LNE, METAS, MSL, NIM, NIST, NMIJ, NMISA, NPL, NPL (India), NRC, RISE, Tsinghua University, TU Ilmenau and UME.**

# The Future



The KBTM was started over 20 years ago as a forum to report progress and exchange ideas on the Kibble Balance (then the watt balance).

The range of instruments has increased significantly over time.

The balance is not limited to NMI level operation but extends to industrial measurements of mass, force and torque.

This meeting has always been organized by and for the participants.

My belief is that it will continue to remain relevant and help you with your important work.

It is up to you to drive it forwards and see that it remains relevant and useful. Given the range of talks over the next 3 days I do not think that will be a problem.

Thank you.

[ian.robinson@npl.co.uk](mailto:ian.robinson@npl.co.uk)

