Measurement Uncertainty

# Talking points

Traceability chain INTRO

NMIs INTRO

GUM INTRO

Accreditation Systems INTRO

Measurement Process

Input Quantities IQ

Propagation – calculating combined uncertainty PROP

Expanded Uncertainty EU

Distributions IQ

Classical/Bayesian IQ

GUM inconsistency IQ

# Introduction

MU underpins our lives. Standardised parts, international trade etc.

No measurement is perfect, how imperfect is it, how imperfect can it be?  
NMIs have to have best uncertainty to accommodate most critical requirements

NMIs set up to develop and harmonise units of measurement

Traceability chain

Accreditation systems to ensure traceability and minimise added uncertainty

GUM provides widely agreed framework for uncertainty evaluation of measurements

Used throughout this work, but not perfect and paper on inconsistencies part of chapter.

# Input Quantities

## Type A Evaluation

## Type B Evaluation

## Multivariate Input Quantities

# Propagation Techniques

## Monte Carlo Methods

## Law of Propagation of Uncertainty

## Finite Difference Methods

# Expanded Uncertainty

# Conclusions

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