

Measurement or Estimation?

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In any structure or enterprise, it is important to ensure that the foundations are solid. We can go on adding more fancy elements but if the foundations are weak then at some point cracks will appear. Metrology is a fascinating field, the GUM is a remarkable document and some truly outstanding technical methods have been built on this foundation, but it is a mess. So this talk is about rebuilding the foundations and making them solid and fit for purpose. Any such rebuilding must ask fundamental questions. What do we mean by (the) measurement? What is the meaning of standard uncertainty, and is it fit for purpose?

My answers may be a little radical, so it is important to ask: are they realistic? The metrology community has already rejected change once because they didn't like, and didn't accept the need for, the practical consequences. This is a much harder question for me because I'm a statistician, not a metrologist, but I will do my best to address the reality of everyday metrology.