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 ELI-NP Headquarters, IFIN-HH  
 ELI-NP Training and Conference Center

# The Measure of All Things: From quetta to quecto<sup>1</sup>

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An overview of the International Measurement System of Units (SI) will be presented, including the recent revisions of definitions for some of the base units linking them to fundamental constants of nature [1,2,3]. The importance of consistent and traceable measurement of physical quantities will be explained, including concepts of traceability, primary standards and the realisation of SI units. The specific case of traceable measurements for radioactive decays to the becquerel (Bq) will be presented in terms of determining absolute values for isotope-specific radioactive sources using precision measurements of radioactive decay half-lives [4,5,6] – all of which are required for safe and appropriate applications of radioactive materials in areas as diverse as nuclear medicine, energy production, forensics and national security. The presentation will end with a mention of the current largest and smallest prefixes in the SI units which now covers 60 orders of magnitude with example of masses from quetta (Qg) to quecto (qg) grams [7].

## REFERENCES:

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