



**Joint International
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Metrology and Measurement Education in the Internet Era

Internet Tutorial for Young Scientists

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Structures and Tools of Metrology

Unifying Structures of Measurement Processes – Fundamentals

- Quantities, Signals and their Structures >>
 - Notation of Quantities >>
 - Elements of the Signal Effect Diagram >>
 - Cause and Effect Diagram >>
- Basic Structures of State Space Representation >>
 - The Term "Transfer" >>
- Fiction of Ideal Measurement – Ideal Measurement Process >>
 - Ideal Measuring Process – Nominal Measuring Process >>
 - Transfer Response of the Ideal Measuring Process in the Time Domain >>

Measurement Signal Processing

- Averaging, Basis of Signal Processing
 - Averaging Operator – Linear averaging >>
 - Averaging and Linear Algebra >>
 - Averaging of One Variable >>
- Relations between Quantities
 - Individual Averaging of Two and More Variables >>
 - Joint Averaging of Two or More Variables >>
 - Referred Joint Averaging of Two and More Variables >>

Measurement Errors and Uncertainties

- Non-ideal Measurement Processes >>
- Properties of the Measurement Error >>
- Disturbing Quantities at a Measuring Process >>

Participants may follow the tutorial with or without a notebook computer. But participants with a notebook will be able to use additional features, going into further depths of content. So please bring your notebook along with you. Participants should have basic knowledge on measurement and / or control theory.

Your notebook needs Wireless LAN (WLAN), an Internet Browser (for example Internet Explorer version 6) and Adobe Reader (version 5).