1158-62-78   **Hanna Makaruk*** (`hanna_m@lanl.gov`), MS H810 LANL, Los Alamos, NM 87545. *Inverse Problem of Recreating a Process from the Data Collected in One-of -a -Kind experiment: why Range of True Experimental Values and Measurement Uncertainty are Independent from each other.* Preliminary report.

A golden standard in science is to repeat an experiment a statistically significant number of times, recording data using the same set of detectors and the same data analysis methodology. In such case experimental error includes both the range of true values generated by repetitions of the experiment, and measurement uncertainty caused by the detector. They are independent. Range of true values depends on the physics of the experiment, while measurement uncertainty depends on the measurement method (properties of the detector not of the experiment). When only data from one–of –a kind experiment are available, only the measurement uncertainty is reported. It gives no information about the range, in which the true values of experiment would spread if the experiment was repeated. One needs to observe that reliability of a data point is independent from its measurement uncertainty. However, in practice reliable measurement methods frequently have high measurement uncertainty, while low reliability methods are applied to limit measurement uncertainty. Comparison of reliable data with high measurement uncertainty to not so reliable data measured with low uncertainty is discussed – in different scenarios different data analysis methods are applicable. (Received February 21, 2020)