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Smart sampling and probing

Jorge Costa Pereira¹ and **Pawel K Zarzycki**²

¹CQC, University of Coimbra, Portugal

²Koszalin University of Technology, Poland

The eternal mystery of the universe is its comprehensibility... are the words of Albert Einstein. Sampling and probing is the traditional way to experience and try to understand all surroundings in terms of characteristics, composition and behavior. Recent methodologies rely on exhaustive sampling and measuring in order to fully characterize unknown systems; and advanced multivariate data processing is required in order to allow human understanding capabilities to overcome our 3D limitations. In our experience, in an exploring action, full sampling and probing usually brings little additional information either because we are repeating system composition or/and we are measuring correlated information that do not bring new enlightenments and novelty. In this work, we will present some ideas in how to check our sampling information in terms of sample consistency and probing information in order to optimize system understanding.