



Friday 8 July, 16:25 – 16:50

Session 16: Global parameter estimation, statistics and detector development

**Statistical quantification of discovery in neutrino physics**

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Statistical discovery questions in neutrino physics, particle physics, and astrophysics often involve mathematical subtleties that mean standard methods (e.g., chi-square) are inappropriate and can lead to misleading results. At the same time modern computational strategies are typically infeasible under extreme discovery criteria (4 sigma or more). This talk explores the statistical challenges that arise in the quantification of discovery and suggests a strategy that combines Bayesian and classical statistical techniques to tackle these challenges.