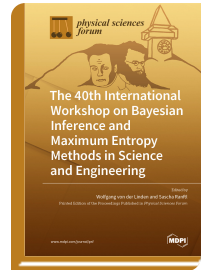# physical sciences forum

Special Issue Reprint

The 40th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering

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Edited by
Wolfgang von der Linden
Sascha Ranftl

These proceedings aim to collect the ideas presented, discussed, and disputed at the 40th Workshop on Bayesian Inference and Maximum Entropy, MaxEnt 2021. Skilling and Knuth seek to rebuild the foundations of quantum mechanics from probability theory, and Caticha competes in that endeavour with a very different entropy-based approach. Costa connects entropy with general relativity, Pessoa reports new insights on ecology and Yousefi derives classical density functional theory, both through the maximum entropy principle. Von Toussaint, Preuss, Albert, Rath, Ranftl and Kvas report the latest developments in regression and surrogate-based inference with applications to optimization and inverse problems in plasma physics, biomechanics and geodesy. Van Soom presents new priors for phonetics, Stern et al. propose a new haphazard sampling method, and Kelter uncovers two measure theoretic iss phonetics ues with hypothesis testing.

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