



The Abdus Salam
**International Centre
for Theoretical Physics**



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Title: Compressed sensing based on diffusion models

Abstract: Compressed Sensing (CS) is a framework that takes advantage of the expected "sparsity" of many natural signals, allowing them to be recovered from fewer measurements. Although the last two decades witnessed many successful applications of CS, it does not provide the optimal sensing scheme.

Theoretically, the optimal performance is achieved by Bayes' theorem exploiting the "correct" prior, which has been considered difficult to realize.

However, the recent advance in research on generative models makes it possible to numerically construct "reasonable" priors for natural signals.

We talk about our recent attempt to improve the performance of CS utilizing diffusion-based generative models as priors.

This is a joint work with Xiangming Meng (Zhejiang University).

References:

X Meng and Y. Kabashima,

arXiv:2302.00919; arXiv:2211.13006 ; arXiv:2211.12343