

# 國立中山大學應用數學系

## 學術演講

講者：邱普照 教授 (國立政治大學應用數學系)

講題：A Bayesian Interpretation of the Inverse Scattering Problem

時間：2025/10/9 (Thursday) 14:10 ~ 15:00

地點：理 SC 4009-1 教室

茶會：13:45

### Abstract

We study the inverse scattering problem of recovering an unknown refractive index from far-field data within a Bayesian framework. The data consist of large collections of noisy discrete samples of the scattering amplitude. Our focus is on the frequentist properties of the posterior distribution as the sample size grows, in particular on establishing posterior consistency together with an explicit contraction rate in terms of the sample size. This talk is based on joint work with Takashi Furuya and Jenn-Nan Wang [1,2]. A MATLAB implementation of the MCMC algorithm is available in our GitHub repository

( [https://github.com/puzhaokow1993/MCMC\\_inverse\\_scattering](https://github.com/puzhaokow1993/MCMC_inverse_scattering) ).

[1] Takashi Furuya, Pu-Zhao Kow and Jenn-Nan Wang, Consistency of the Bayes method for the inverse scattering problem. Inverse Problems (2024) <https://doi.org/10.1088/1361-6420/ad3089>

[2] Takashi Furuya, Pu-Zhao Kow and Jenn-Nan Wang, Consistency of the Bayes method for the inverse scattering problem with randomly truncated Gaussian priors. Inverse Probl. Imaging. (2025) <https://doi.org/10.3934/ipi.2025040>

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