

# Memory properties of aggregated autoregressive processes and fields

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**Keywords:** aggregation, autoregressive process, autoregressive field, spectral density.

The aggregation of the first order autoregressive models, AR(1), with random coefficients is investigated. We study two cases of the underlying model:

- (i) autoregressive sequence on  $\mathbf{Z}$ ;
- (ii) autoregressive field on  $\mathbf{Z}^2$  with various configurations of neighbors.

Asymptotics of the spectral density of the resulting random process or field is studied. We show that, depending on the law of the AR coefficients, the aggregated process/field can exhibit short or long memory structure.