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**Partial autocorrelation function for spatial processes.** (English) Zbl 0806.62077  
Stat. Probab. Lett. 21, No. 1, 9-19 (1994).

This paper deals with statistics of second-order stationary two-dimensional random fields. For data observed on a rectangular lattice, several authors suggested suitable two-dimensional ARMA models to apply time series methods. For a class of such ARMA-models a partial autocorrelation function (PACF) is defined and the estimation of this PACF is treated in detail. In case of Gaussian models some asymptotic properties are obtained. Their applicability in statistical analysis is discussed and partially supported by simulation studies.

Reviewer: [L.Heinrich \(Freiberg\)](#)

**MSC:**

- [62M30](#) Inference from spatial processes
- [62M10](#) Time series, auto-correlation, regression, etc. in statistics (GARCH)
- [62M40](#) Random fields; image analysis
- [60F05](#) Central limit and other weak theorems

Cited in **2** Documents

**Keywords:**

[stationary spatial processes](#); [second-order stationary two-dimensional random fields](#); [rectangular lattice](#); [two-dimensional ARMA models](#); [time series](#); [partial autocorrelation function](#); [Gaussian models](#); [asymptotic properties](#); [simulation studies](#)

**Full Text:** [DOI](#)

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