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# An algorithm to separate measurement noise in Langevin processes

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Starting from the two first conditional moments of a stochastic time-series with strong measurement noise, we derive explicitly the measurement noise amplitude and the parameters defining the two first Kramers-Moyal coefficients of the associated time-series without such noise. The underlying algorithm is based on the minimization of a functional depending on functions either computed directly from the time-series or on polynomials which represent the Kramers-Moyal coefficients of the associated time-series. We show the efficiency of our procedure by applying it to a synthetic Langevin process with measurement noise. Finally, as a specific application we also apply the minimization procedure to an observational time-series, namely the daily North Atlantic Oscillation index.