Measuring the correlation time

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May 18, 2021, Revision: 1.94

Compute

$$\tau(t) = \int_0^t \langle \boldsymbol{u}(t) \cdot \boldsymbol{u}(t') \rangle \, \mathrm{d}t' / \langle \boldsymbol{u}^2 \rangle. \tag{1}$$

see Figure 1 for a case where $k_\mathrm{f} = 10$ and $u_\mathrm{rms} = 0.1$.
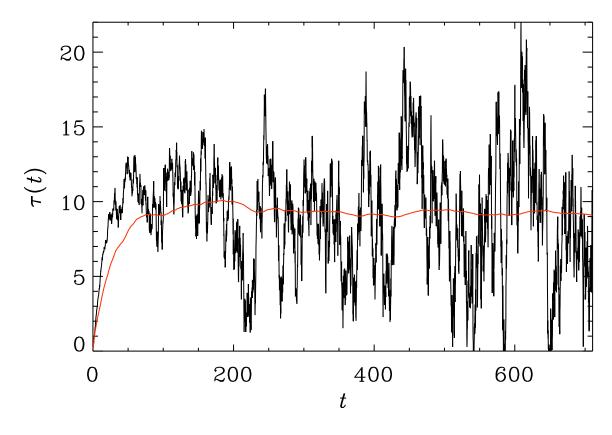

Figure 1: `pcortime`