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Assessment of cooperativity in complex systems with non-periodical dynamics: Comparison of five mutual information metrics

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Highlights:

- Cooperativity metrics in complex systems are affected by both cross- and autocorrelations
- Time delay stability is unaffected by additive while affected by multiplicative white noise
- Coherence is invariant to short-term, while cross-conditional entropy to long-term correlations
- Combination of several metrics provide a better characterization of phase transitions
- Phase transition in geomagnetic network reveals a characteristic pattern during a solar flare

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