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Properties of a new small-world network with spatially biased random shortcuts

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*Highlights

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Highlight PHYSA-162128

・A refined generating algorithm for small-world network with a power-law distance distribution is proposed.

・The fundamental network properties is examined while varying shortcut probability and spatial cost.

・By increasing the spatial cost; γ, average path length between nodes get longer while clustering coefficient is improved.

・By increasing the shortcut probability; q, nodes become close, while clustering is deteriorated.

・The dynamical properties of the networks are tested in terms of spatial prisoner's dilemma game.

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