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RESEARCH NOTES

伴有生物质热解的流化床中的混沌传递现象

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摘要 Experiments of biomass pyrolysis were carried out in a fluidized bed, and dynamic signals
of pressure andtemperature were recorded. Correlation dimension was employed to characterize the chaotic behavior of pressure andtemperature signals. Both pressure and temperature signals exhibit chaotic behavior, and the chaotic behavior oftemperature signals is always weaker than that of pressure signals. Chaos transfer theory was advanced to explain theabove phenomena. The discussion on the algorithm of the correlation dimension

shows that the distance definitionbased on rhombic neighborhood is a better choice than the traditional one based on spherical neighborhood. Theformer provides a satisfactory result in a much shorter time.

关键词 chaos transfer correlation dimension fluidized bed biomass pyrolysis

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Chaos Transfer in Fluidized Beds Accompanied with Biomass Pyrolysis

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Abstract Experiments of biomass pyrolysis were carried out in a fluidized bed, and dynamic signals of pressure andtemperature were recorded. Correlation dimension was employed to characterize the chaotic behavior of pressure andtemperature signals. Both pressure and temperature signals exhibit chaotic behavior, and the chaotic behavior oftemperature signals is always weaker than that of pressure signals. Chaos transfer theory was advanced to explain theabove phenomena. The discussion on the algorithm of the correlation dimension shows that the distance definitionbased on rhombic neighborhood is a better choice than the traditional one based on spherical neighborhood. Theformer provides a satisfactory result in a much shorter time.

Key words chaos transfer; correlation dimension; fluidized bed; biomass pyrolysis

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