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A nonlinear dynamics perspective of Wolfram's new kind of science. Vol. 3.
(English)

World Scientific Series on Nonlinear Science. Series A 68. Hackensack, NJ: World Scientific. xv, 340 p. \$ 115.00; £ 62.00 (2009). ISBN 978-981-283-793-6/hbk

This is the third volume of “A nonlinear dynamics perspective of Wolfram's new kind of science”, the second volume of which was reviewed at some length [World Scientific Series on Nonlinear Science. Series A 57. Hackensack, NJ: World Scientific (2007; Zbl 1135.37001)]; some of the constituent chapters appear in the journal ‘International Journal of Bifurcation and Chaos’, with additional co-authors. The main theme of this volume is the isle of Eden phenomenon in cellular automata, and once again this is explored in a lively and engaging fashion via a huge number of numerical experiments and colourful illustrations of the phenomena, but it is not always easy to understand the precise mathematical meaning of what is being asserted. As in the case of the second volume, I would urge the reader to view this striking book in the context created by the earlier work of *S. Wolfram* [A new kind of science. Champaign, IL: Wolfram Media (2002; Zbl 1022.68084)] and one of its many substantial reviews – for example, that of *L. Gray* [Notices Am. Math. Soc. 50, No. 2, 200–211 (2003; Zbl 1136.37300)], and in combination with a background text on the mathematical study of dynamical systems.

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Keywords : cellular automata; Isle of Eden; nonlinear dynamics

Classification :

***37B10** Symbolic dynamics

37N20 Dynamical systems in other branches of physics