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★**Ergodic theory of numbers. (English. English summary)**

Carus Mathematical Monographs, 29.

*Mathematical Association of America, Washington, DC, 2002. x+190 pp. \$39.95. ISBN 0-88385-034-6*

This nice little book has grown from a course given in 1996 during an NSA-sponsored Summer Program for Women in Mathematics. Its aim reflects the research interests of the authors, in that it focuses on the dialogue between ergodic theory and (variants of) the continued fraction algorithm and other maps of number-theoretical interest. Little is assumed, and a great deal of the basic machinery and terminology of ergodic theory is developed along the way. There are exercises throughout, and these develop the background theory as well as showing how it may be used. After discussing  $n$ -ary expansions, continued fractions, Lüroth series and the  $\beta$ -expansion are treated. Along the way the existence of invariant measures is discussed, which leads naturally into a treatment of the ergodic theorem in the spirit of Kamae. A lengthy chapter shows the connection between continued fraction expansions and Diophantine approximation. The last chapter involves much more advanced material (skew-products, entropy, characterisation of Bernoullicity by Friedman-Ornstein and Saleski) at a more sketchy level.

This book could serve as the basis for a first course in ergodic theory or the basis for a course aimed at number theorists. It is carefully written with clear statements of results and many well-chosen examples, and the selection of exercises is excellent.

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