

**Ito, Shunji; Yasutomi, Shin-ichi****On continued fractions, substitutions and characteristic sequences**  $[nx + y] - [(n - 1)x + y]$ .  
(English) [Zbl 0721.11009](#)

Jap. J. Math., New Ser. 16, No. 2, 287-306 (1990).

Let  $x, y$  be real numbers with  $0 < x < 1$ ,  $0 \leq y$  and  $x + y \leq 1$ . Then the sequence  $c_n(x, y) := [nx + y] - [nx - x + y]$ ,  $n = 0, 1, 2, \dots$  is considered. For the special case  $y = 0$  the sequence  $c_n(x, 0)$  can be expressed by the continued fraction expansion of  $x$ . A new characterization of this sequence is given which uses the map  $T: [0, 1] \rightarrow [0, 1]$ ,  $Tx = x/(1 - x)$ ,  $0 \leq x < 1/2$ ,  $Tx = (2x - 1)/x$ ,  $1/2 \leq x < 1$  and substitutions of 0-1-sequences. This method can be generalized to the case  $y \neq 0$ . Here a suitable planar map is used.

Reviewer: [F.Schweiger \(Salzburg\)](#)**MSC:**

[11B83](#) Special sequences and polynomials  
[11A55](#) Continued fractions  
[11A63](#) Radix representation; digital problems

Cited in **25** Documents**Keywords:**

characteristic sequence; continued fraction expansion; substitutions of 0-1-sequences