

Continued Fractions, Dynamical System and Increasing Sequences of Positive Integers

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The MEX algorithm is a widely used combinatorial method to generate pairs (m,n) of complementary sequences. These are sequences A and B (like the Evens and the Odds, Primes and Non-prime numbers, etc...) whose union gives the positive integers and whose intersection is empty. There is an interesting connection between the Minimum Excluded (MEX) Algorithm, Continued Fractions, Dynamical System and Increasing Sequences of Positive Integers. For instance, iterating the MEX algorithm repeatedly starting from certain initial kind of sequences is equivalent to prepending digits to the continued fractions of irrational numbers. In this talk we will see how generating complementary sequences connects with the above mentioned topics.

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