

Title:

(a,b)-Fibonacci Sequences via Specially Multiplicative Functions

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Abstract:

This talk brings to the fore a different and effective way of approaching Fibonacci sequences via specially multiplicative arithmetic functions. Completely and specially multiplicative functions, are used to highlight the benefit offered by the theory of multiplicative arithmetic functions and play an essential role in the development of basic properties of sequences defined by a linear two-term recurrence relation. Specially multiplicative prime-independent arithmetic functions and the (a,b) -Fibonacci sequences are two equivalent mathematical objects in the sense that each can be reconstructed from the other. We present the Binet formula in convolution setting as a bridge between the theory of (a,b)-Fibonacci sequences and the theory of multiplicative arithmetic functions. Many identities with (a,b)- Fibonacci numbers are obtained as immediate consequences of identities with arithmetic functions.