1125-11-1702 **Dawn C. Nelson***, Department of Mathematics, 2641 John F Kennedy Blvd, Jersey City, NJ 07306. *Generalized Zeckendorf Decompositions and Monovariants.* Preliminary report.

Using only quarters, dimes, and pennies what is the fewest number of coins that will total to 42 cents? Hint: Do NOT use the quarter. The "greedy" technique of using the largest possible coin does not give the correct answer in this problem.

In this talk we will show that when decomposing positive integers as sums of Fibonacci numbers, the greedy algorithm (which results in the Zeckendorf decomposition) yields the fewest number of summands. The same is true of the new Fibonacci Quilt sequence (a two-dimensional analog to Zeckendorf decompositions). As time allows we discuss other generalized Zeckendorf decompositions such as positive linear recurrence sequences. The main tools in our proofs are monovariants. (Received September 18, 2016)