

RESEARCH STATEMENT

Original Creative Work

Citation: Noel Patson 2009, Recorded or Rendered Work, Web Exhibition, *Möbius Mu Function Walk* Wolfram Mathematica.

<http://demonstrations.wolfram.com/MoebiusMuFunctionWalk/>

Research Background

A Möbius μ function walk is determined by stepping in a specified direction determined by each successive value of the Möbius μ function. The number of possible turns can be selected and a choice between five different direction assignment rules can be made. The path is coloured various hues to help distinguish overlapping parts.

Research Contribution

- Innovation – This presentation is the first time the Möbius μ function has been represented in this way. It is a fresh revelation of complex patterns arising from the application of simple rules on simple objects.

Research Significance

The demonstration has been through a rigorous review process[†].

[†] <http://demonstrations.wolfram.com/FAQ.html>

It is expected that the patterns arising from this visualization will reveal underlying properties of numbers and provide answers to long standing mathematical problems.

This demonstration has links in the following websites:

<http://mathworld.wolfram.com/MoebiusFunction.html>

<http://mathworld.wolfram.com/MertensFunction.html>

<http://mathworld.wolfram.com/RandomWalk.html>

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Date: October 2009

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