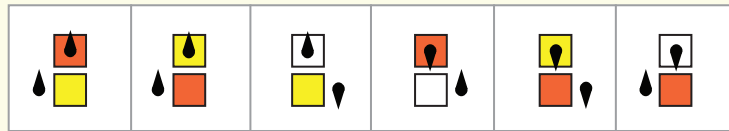


Announced May 14, 2007: 5th Anniversary of the Publication of *A New Kind of Science*

# THE WOLFRAM 2,3 TURING MACHINE RESEARCH PRIZE

**\$25,000 prize**

**Is this Turing machine universal, or not?**



The machine has 2 states and 3 colors, and is 596440 in Wolfram's numbering scheme.

If it is universal then it is the very smallest universal Turing machine that exists.

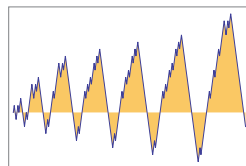
*A universal Turing machine is powerful enough to emulate any standard computer. The question is: how simple can the rules for a universal Turing machine be?*

*Since the 1960s it has been known that there is a universal 7,4 machine. In *A New Kind of Science*, Stephen Wolfram found a universal 2,5 machine, and suggested that the particular 2,3 machine that is the subject of this prize might be universal.*

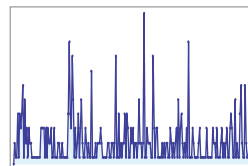
*The prize is for determining whether or not the 2,3 machine is in fact universal.*

#### PRIZE COMMITTEE INCLUDES:

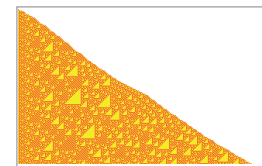
**Lenore Blum** ■ **Greg Chaitin** ■ **Martin Davis** ■ **Ron Graham**  
**Yuri Matiyasevich** ■ **Marvin Minsky** ■ **Dana Scott** ■ **Stephen Wolfram**



Excursions of the Turing machine head.



Spacings between jumps of the right edge of the compressed evolution.



A compressed version of the Turing machine evolution.

For more information and for official rules and guidelines, visit:

[www.wolframprize.org](http://www.wolframprize.org)

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