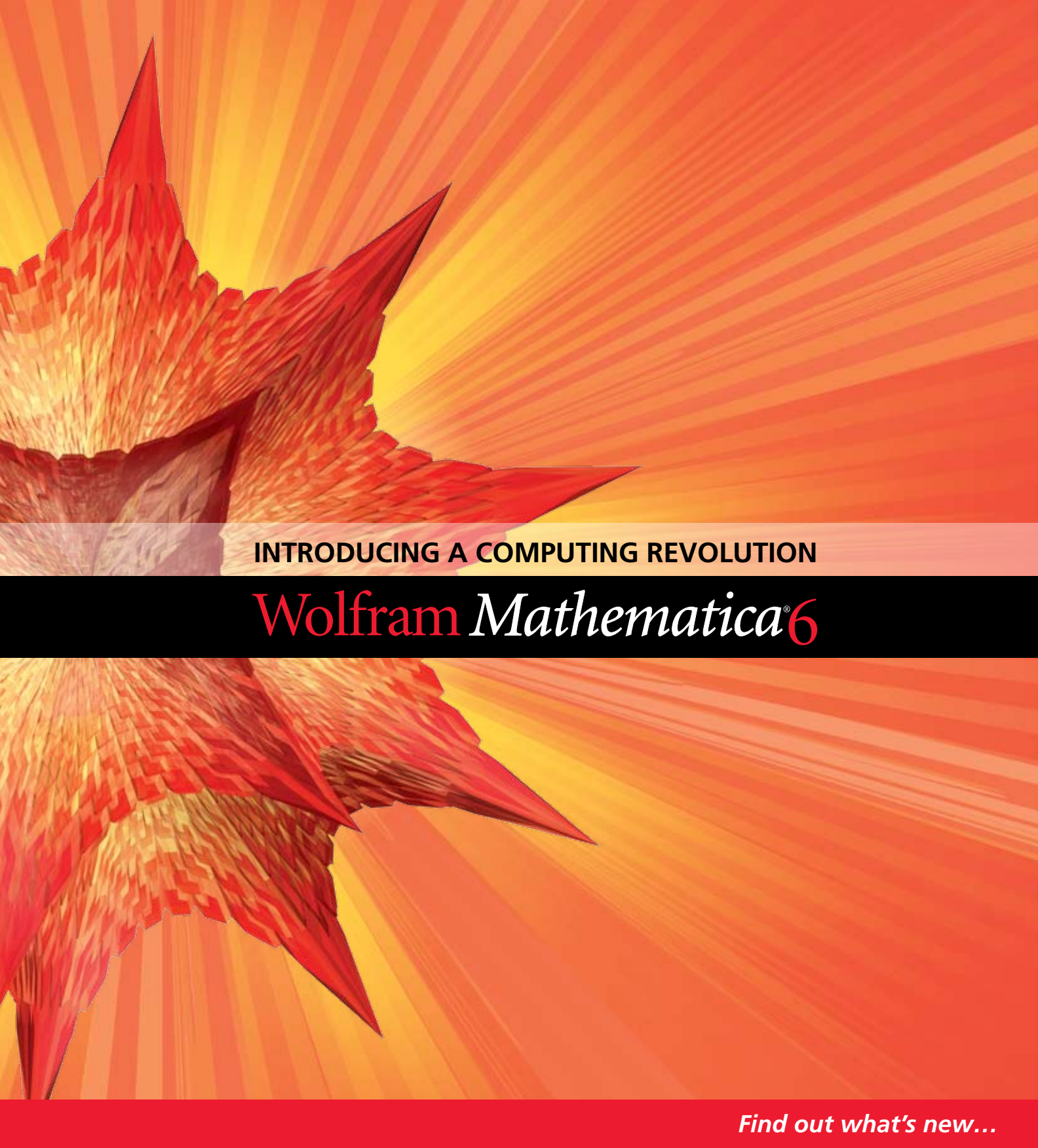

INTRODUCING A COMPUTING REVOLUTION
Wolfram Mathematica® 6
Find out what's new…

MATHEMATICA REINVENTED

Long recognized as the world's most powerful mathematical software system, Mathematica has steadily grown in breadth and depth to become today an unparalleled platform for all forms of computation.

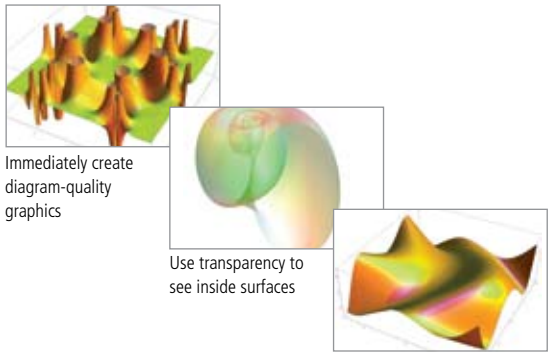
Introducing over 1000 new computational functions and interface enhancements, Mathematica 6 represents a dramatic breakthrough that immensely broadens Mathematica's scope and applicability—and redefines the very way we think about computation.

High-Impact Adaptive Visualization

Automated creation of high-fidelity function and data graphics

With more than 25 new core visualization types and 50 new general visualization options, *Mathematica* 6 helps you create high-impact 2D, 3D, and dynamic visualization of functions and data.

- Completely uniform scalable support for arbitrary structured and unstructured data.
- Automatic adaptive sampling for arbitrary functions, equations, and inequalities.
- Full support for adaptive contour and region plotting in 2D and 3D.
- Support for arbitrary overlay meshes, clipping regions, and color functions.
- Automatic handling of multiple functions and multiple datasets.
- Full integration with dynamic annotation and interface capabilities.
- Export to all major 2D and 3D raster, vector, and animated formats.



Immediately create diagram-quality graphics

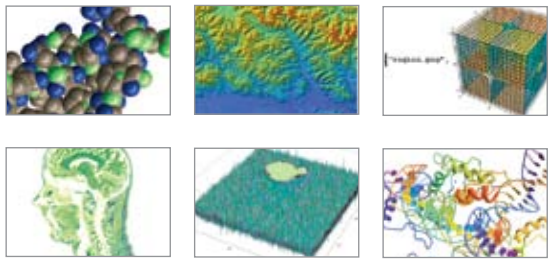
Use transparency to see inside surfaces

Create realistic surface images

Language for Data Integration

Automatic integration of hundreds of standard data formats

- Uniform mechanism for immediate extraction of data and metadata "elements", and control of representation and rendering in *Mathematica*.
- Built-in support for importing from the web, including support for extracting structured and unstructured data from HTML web pages.
- Automatic support for importing as well as exporting PDF.
- Support for new graphics and sound formats—such as ICO, PXR, PLY, Maya, MIDI, and QuickTime—and greatly enhanced subformats and metadata mechanisms.
- Enhanced support for tabular and spreadsheet formats; direct support for database import.
- Unified support for annotated rasterization of arbitrary graphics, typesetting, controls, and notebook elements.
- Direct support for systems formats such as Apache logs and mbox, as well as compression and archive formats.
- Direct support for multifile importing and exporting.



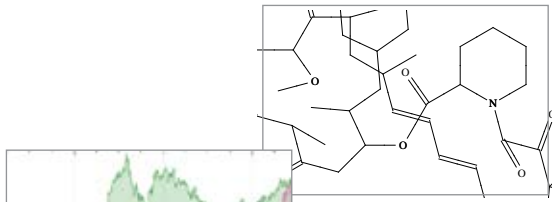
Broad support for 3D geometry and modeling, GIS, chemical, biomedical, and scientific/astronomical formats

Load-on-Demand Curated Data

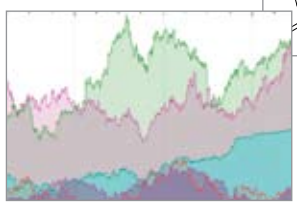
Math, physics, chemistry, finance, geography, linguistics, ...

For the first time, major collections of real-time data are now built into *Mathematica*. An efficient load-on-demand mechanism makes hundreds of gigabytes of carefully curated and continually updated data immediately available for any computation.

- Extensive mathematical data on polyhedral geometry, graphs, knots, and lattices.
- Data on all 1000+ known subatomic particles.
- Over 150 economic, demographic, geographic, and other properties of countries and country groups.
- Information on nearly one-quarter million cities worldwide.
- Current and historical financial data on stocks, funds, indices, and currencies.



Extensive built-in chemical data

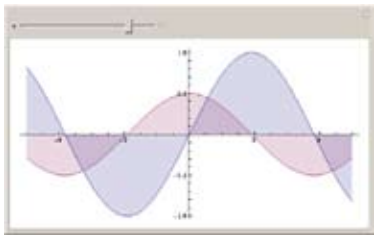


Analyze financial data and time series

Dynamic Interactivity

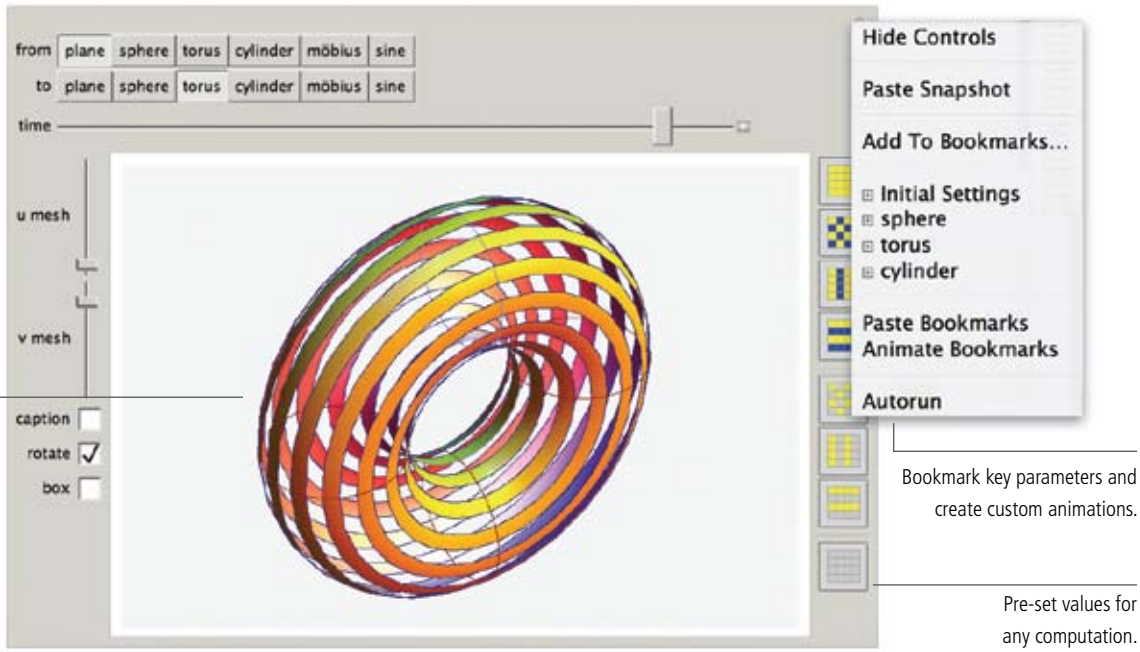
Introducing the instant interface

```
Manipulate[Plot[{Sin[a x], .5 Cos[a x]},
  {x, -5, 5}], {a, 0, 1}]
```



***Mathematica* 6 brings a revolution in the concept of interactive computing—for the first time allowing dynamic interfaces to be created instantly as a routine part of everyday work. Based on a series of inventions at Wolfram Research, *Mathematica* 6 builds on *Mathematica*'s powerful core symbolic architecture to allow sophisticated interactive interfaces to be created from single lines of input—as easily as getting answers to simple calculations.**

Add any number of built-in controls to create powerful interfaces complete with sliders, checkboxes, buttons, and more.



Real-time 3D graphics can be rotated and controlled or exported to all standard 3D graphics formats.

Bookmark key parameters and create custom animations.

Pre-set values for any computation.

Immediately explore parameter spaces of any size, using dynamic controls to manipulate your computations in real time.

The Wolfram Demonstrations Project

Experience *Mathematica* firsthand with over 1500 dynamic examples of *Mathematica* 6 technology at work. The Wolfram Demonstrations Project lets you freely interact with *Mathematica*'s interface capabilities and gives you code you can use, with new interactive visualizations added each day.

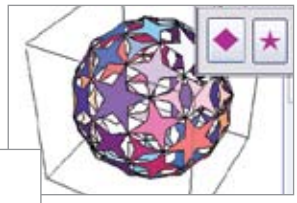
demonstrations.wolfram.com

Symbolic Interface Construction

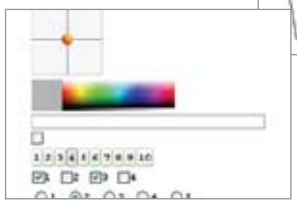
Immediate creation of arbitrary interfaces from simple programs

Mathematica 6 completely redefines user interface programming—now making it practical for non-experts to create highly sophisticated dynamic interfaces complete with customizable symbolic controls.

- Over 20 built-in control objects and interface elements, including sliders, buttons, tabs, input fields, mouseovers, and more.
- Full integration of graphical, textual, and tabular layout.
- Multiparadigm interface support, including dialogs, toolbars, click panes, etc.
- Support for interfaces embedded within scrollable documents.
- Incremental interface building, with all subparts immediately testable.
- Low-level event-handling support.
- Fully integrated dialog-building language.



Construct arbitrarily sophisticated palettes

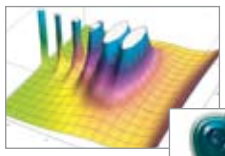


Immediately implement standard controls

Automated Computational Aesthetics

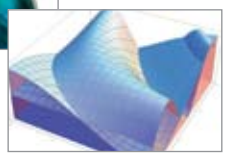
Innovative algorithmic optimization of visual presentation

- Immediate automatic creation of publication-quality visual material.
- Options for both high-level and detailed control of aesthetic criteria.
- Full automation of graphics detailing, using algorithmic aesthetics methods.
- Multiple automatic methods for feature segmentation and highlighting.
- Automatic aesthetics for meshing, lighting, and labeling in 2D and 3D graphics.
- Automatic coloring, transparency, and markers for multiple curves, regions, and datasets.
- Robust automatic region-of-interest determination, and whitespace minimization.
- Automated aesthetics fully scalable for large datasets and complex graphics.
- Extensive built-in artistic and scientific color schemes.
- High-resolution printing fully supported for all output.



Automatic region-of-interest selection

Easily create master-quality visualizations



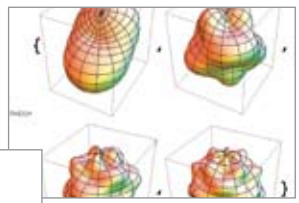
Use transparency for 3D filling

Unification of Graphics, Text, & Controls

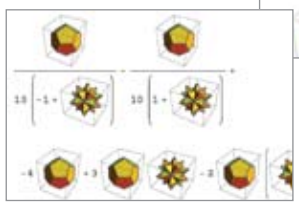
Ultimate integration of active graphics and controls into flowing text and input

Mathematica 6 achieves for the first time a dramatic unification that deeply integrates fully editable and active graphics, text, math, tables, controls, and user interfaces in every aspect of both input and output, allowing a remarkable range of important new forms of display and interaction.

- User interfaces and graphics can appear directly in flowing text, with full editability.
- Graphics can contain arbitrary active elements, controls, etc.
- Controls can use graphics, other controls, etc. as labels and values.
- Text, graphics, controls, and other elements can be arbitrarily nested.
- Automatic context-sensitive graphics sizing.



Make lists of graphics



Include graphics anywhere in an expression


Integrated Geometric Computing


Fully Automated Graph Layout

Combinatorial Optimization


Constrained Nonlinear Optimization


New Generation Numerical Integration

New Classes of Special Functions


Extended Number Theory Support


Equational Theorem Proving

Exploratory Data Analysis


Symbolic Statistical Computing


High-Level String Computation

Extended Array Operations


Symbolic Sound Support


Dynamic Graphical Input


Integrated Graphics Editing & Drawing

Extended Graphics Language


Real-Time 3D Graphics


Built-in Gamepad & HID Support

3D Printing & Scanning Support


Instant Multimedia Programming


Streamlined Presentation Framework

Automated Table Layout


Symbolic Report Generation


Real-Time Code Annotation

Instant High-Level Debugging


New Documentation Framework

Find out more about *Mathematica* 6 at **wolfram.com/mathematica**

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