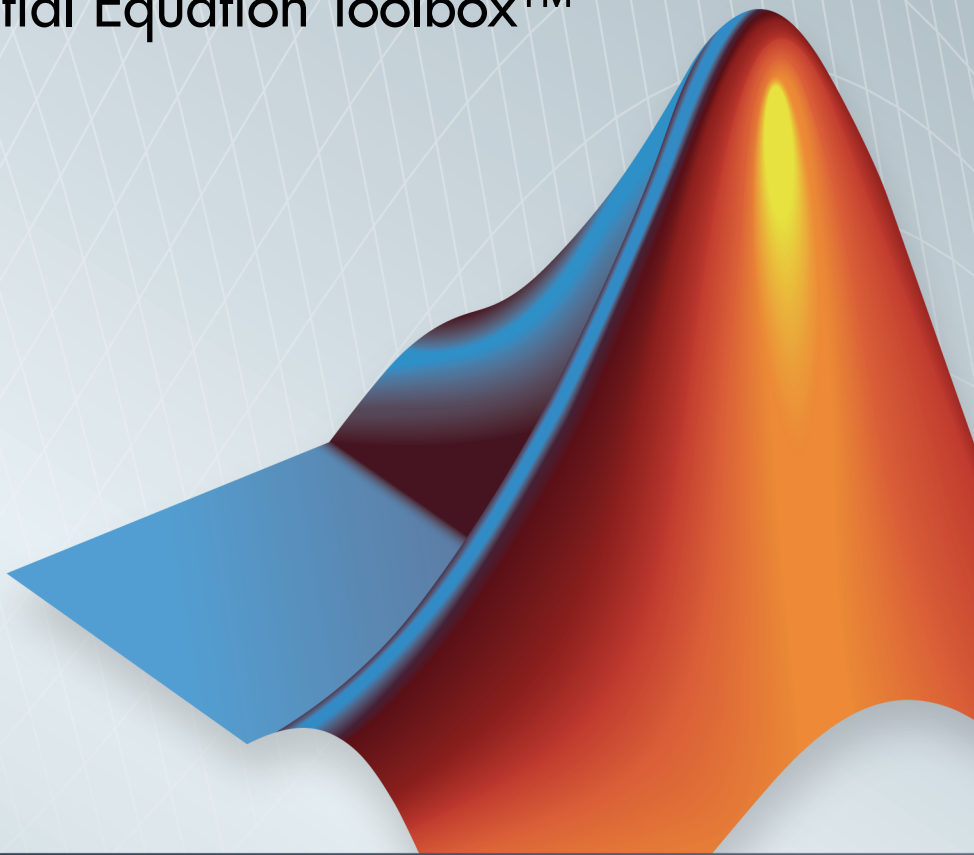
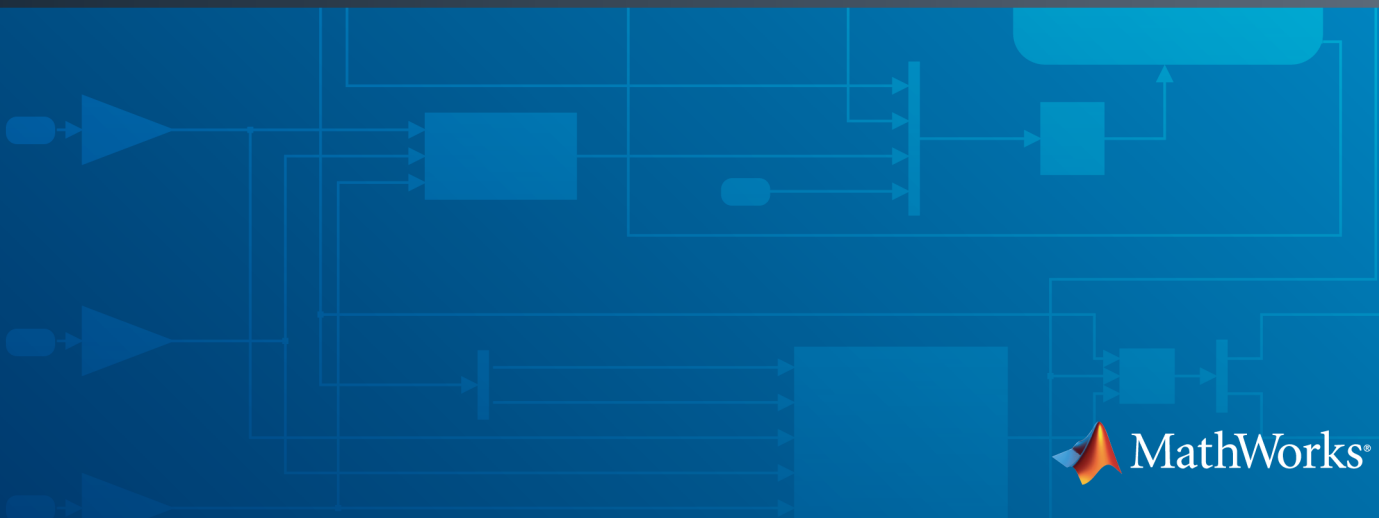


Partial Differential Equation Toolbox™
Release Notes



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Partial Differential Equation Toolbox™ Release Notes

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R2014b

Version: 1.5

New Features

Bug Fixes

Functions for modular definition of boundary conditions

To specify PDE boundary conditions in a modular fashion, per edge or set of edges, use a `pdeBoundaryConditions` specification. For details, see “Steps to Specify a Boundary Conditions Object”.

`pdeInterpolant` object for solution interpolation

Interpolate a PDE solution to a set of points using `evaluate` on an interpolant. Create the interpolant using `pdeInterpolant`.

R2014a

Version: 1.4

New Features

Bug Fixes

Damping option for hyperbolic solver

You can include damping in the hyperbolic solver in matrix form. There is a new example of dynamics of a damped cantilever beam that shows how to use this feature.

R2013b

Version: 1.3

New Features

Bug Fixes

Display option in hyperbolic and parabolic solvers

You can disable the display of internal ODE solution details that the hyperbolic and parabolic solvers report. To disable the display, set the `Stats` name-value pair to `'off'`.

Eigenvalue example

There is a new example of eigenvalues of a circular membrane. View the example [here](#). To run the example at the MATLAB® command line:

```
echodemo eigsExample
```

R2013a

Version: 1.2

New Features

Bug Fixes

Performance and robustness enhancements in meshing algorithm

The meshing (geometry triangulation) functions in `initmesh` and `adaptmesh` provide an enhancement option for increased meshing speed and robustness. Choose the enhanced algorithm by setting the `MesherVersion` name-value pair to `'R2013a'`. The default `MesherVersion` value of `'preR2013a'` gives the same mesh as previous toolbox versions.

The enhancement is available in `pdetool` in the **Mesh > Parameters > Mesher version** menu.

New example

There is a new example of heat distribution in a radioactive rod. View the example [here](#). To run the example at the MATLAB command line:

```
echodemo radioactiveRod
```

R2012b

Version: 1.1

New Features

Compatibility Considerations

Coefficients of parabolic and hyperbolic PDEs that can be functions of the solution and its gradient

You can now solve parabolic and hyperbolic equations whose coefficients depend on the solution u or on the gradient of u . Use the parabolic or hyperbolic commands, or solve the equations using `pdetool`. For details, see the function reference pages.

Graphics export from `pdetool`

You can save the current `pdetool` figure in a variety of image formats. Save the figure using the **File > Export Image** menu. See File Menu.

`pdegplot` labels edges and subdomains

`pdegplot` now optionally labels:

- The edges in the geometry
- The subdomains in the geometry

To obtain these labels, set the `edgeLabels` or `subdomainLabels` name-value pairs to `'on'`. For details, see the `pdegplot` reference page.

New examples

There is a new example of uniform pressure load on a thin plate. View the example here. To run the example at the MATLAB command line:

```
echodemo clampedSquarePlateExample
```

There is a new example of nonlinear heat transfer in a thin plate. View the example here. To run the example at the MATLAB command line:

```
echodemo heatTransferThinPlateExample
```

There is a new example of a system of coupled PDEs. View the example here. To run the example at the MATLAB command line:

```
echodemo deflectionPiezoelectricActuator
```

pdesmech shear strain calculation change

The pdesmech function now calculates shear strain according to the engineering shear strain definition. This has always been the documented behavior. However, the previous calculation was performed according to the tensor shear strain calculation, which gives half the value of the engineering shear strain.

Compatibility Considerations

pdesmech now returns shear strain values exactly twice as large as before.

