Partial Differential Equation Toolbox™ Release Notes

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R2013b

R2013a

R2012b

R2013b

Version: 1.3

New Features: Yes

Bug Fixes: Yes

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: Yes

Bug Fixes: Yes

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: Yes

Bug Fixes: No

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

Compatibility Considerations: Yes

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.