

# **Release Notes for Partial Differential Equation Toolbox™**

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*Release Notes for Partial Differential Equation Toolbox™*

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## R2012b

Coefficients of parabolic and hyperbolic PDEs that can be functions of the solution and its gradient .....	2
Graphics export from <code>pdeplot</code> .....	3
<code>pdeplot</code> labels edges and subdomains .....	4
New examples .....	5
<code>pdesmech</code> shear strain calculation change .....	6



# R2012b

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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.