



Release Notes: DIGIMAT 4.0.2 – April 2010

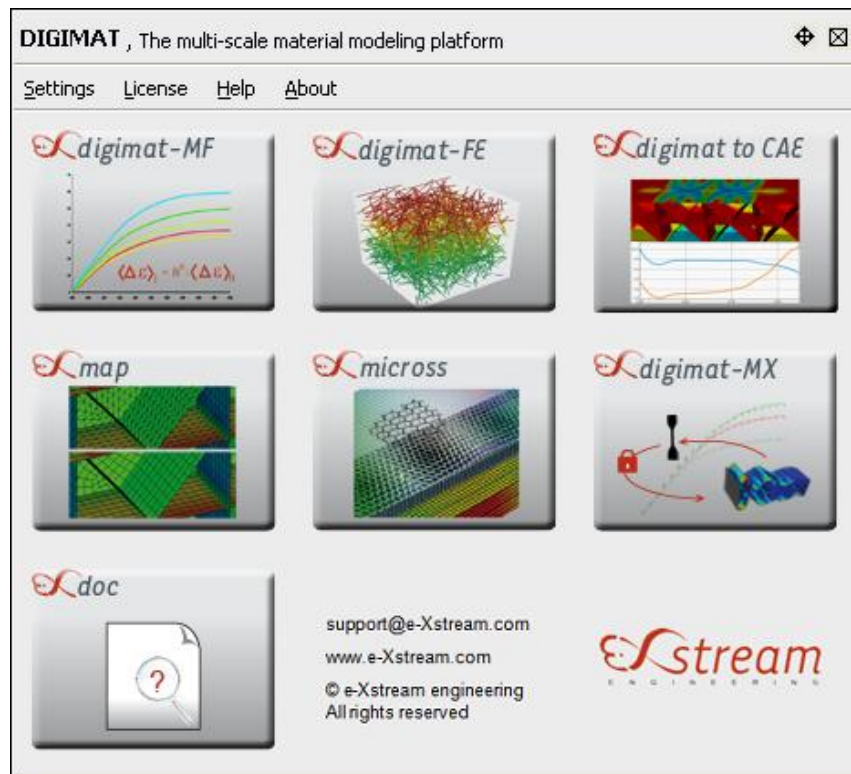
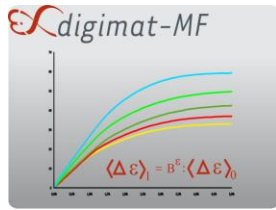


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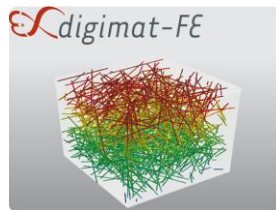


Digimat-MF

The Mean-Field homogenization software used to predict the multi-physics, nonlinear behavior of multi-phase materials.

New Capabilities in 4.0.2

- Closure method = orthotropic: The default for the closure method has changed from hybrid to orthotropic.

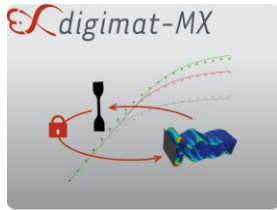


Digimat-FE

The Finite Element based homogenization software used to model the multi-physics, nonlinear behavior of Representative Volume Elements (RVE) of realistic material microstructures.

New Capabilities in 4.0.2

- 2D RVE generation: This allows creating 2D planar RVEs and the related FEA models using plane strain assumption. This capability can, amongst other, be used to study at a lower CPU cost the transverse material behavior of UD composites.
- Maximum packing algorithm: A new RVE generation process which allows reaching higher inclusion content. This algorithm packs inclusions from the center of the RVE and fills it in respecting the targeted minimum distance between inclusions.
- Interface to Ansys Workbench v12.1: This version of the interface allows you to automatically import in Ansys Workbench the RVE geometry as well as the material defined in Digimat-FE.
- Improvement in computation of percolation threshold: The percolation threshold can now be computed both for coated and uncoated fillers. The threshold is captured based on a user defined minimum distance between inclusions which is assumed to induce percolation. The algorithm is also extended to multi-phases composites.
- Visualization settings: RVE visualization settings allow choosing the color, transparency level and visibility of every phase independently.
- RVE generation process: The animation of a RVE generation process can be played-back at any desired speed after the completion of the Digimat-FE job. The animation can also be saved in an .avi file.
- RVE meshing using embedded beam elements: Two new inclusion shapes, straight and curved beams, enable the generation of FEA models using the embedded element technique of ABAQUS. This technique allows to mesh regularly the RVE using hexahedral elements and to embed the fillers made of beam elements.
- Thermo-hyperelastic material model.
- Transversely isotropic Fourier material model.

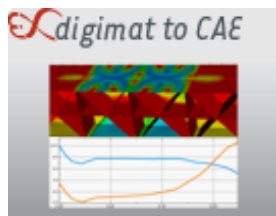


Digimat-MX

The Material eXpert system is used to prepare, to store & retrieve and to securely exchange DIGIMAT material models between material suppliers and end-users, while protecting the Intellectual Property of the involved parties.

New Capabilities in 4.0.2

- Data sheet generation: A data sheet including grade information, representative stress-strain curve, traceability information as well as other useful information can be generated in PDF format both for DIGIMAT analysis, material and experimental files.
- Improvements in start/stop server management.
- Grade deletion: A grade and all its related data can be removed from any database for which the user has written permission.
- Database visualization: A global visualization of the content of a database can be displayed in histogram form. The content is expressed in terms of number of DIGIMAT materials and experimental data for every family of material type existing in the data base.
- Password management.

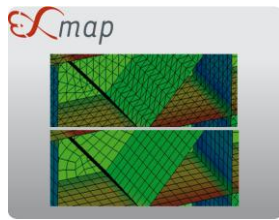


Digimat to CAE

DIGIMAT linear and nonlinear interfaces to major injection molding and structural FEA software to enable seamless multi-scale analyses of composite materials and structures.

New Capabilities in 4.0.2

- Interface to Ansys Mechanical v12.1: Digimat to Ansys supports version 12.1 of Ansys Mechanical for which are moreover provided dynamic libraries (.dll). This enables anyone to use the interface without having to link a new version of the Ansys Mechanical executable. Notice that a wizard has also been developed specifically for Ansys v12.1.

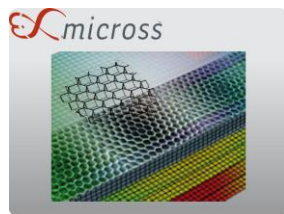


Map

Shell & 3D mapping software used to transfer fiber orientation, residual stresses and temperatures between dissimilar injection molding and structural FEA meshes.

New Capabilities in 4.0.2

No new capabilities.



Micross

Micross is the accurate and easy-to-use software used to develop composite sandwich panels using standard numerical bending and shear tests. Material can be input at the Composite/Core (macro) level or at the Fiber-Resin/Cell level. Micross can be used by analysts and designers with no experience in micromechanics or finite element modeling.

New Capabilities in 4.0.2

No new capabilities.



Documentation

DIGIMAT Users' Manual. It contains all the technical information about the DIGIMAT software modules as well as practical information about their use. Tutorials and hands-on exercises are also provided for the user to get familiar with the software.

New in 4.0. 2

No new capabilities.



VISIT

www.e-Xstream.com

INFO REQUEST

info@e-Xstream.com

TECHNICAL SUPPORT

support@e-Xstream.com

+32 10 81 40 82

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