

## Flux<sup>®</sup> 10.4 – Providing Meaningful Experimentation in an Efficient Way

**Meylan, France – March 1, 2011** – CEDRAT S.A. announces the release of Flux<sup>®</sup> version 10.4. Flux<sup>®</sup> tools are Finite Element Method (FEM) based software developed by Cedrat of Grenoble, France, in collaboration with G2ELab<sup>1</sup>. Flux<sup>®</sup> simulates physical data for electromagnetic and electromechanical phenomena allowing users to run laboratory experiments and then collect the response data for their ideas. Users can prototype virtually on their PC computers saving time and money with each idea.

Flux<sup>®</sup> applications now contain a **unified and scriptable interface**. This scripting capability which is called PyFlux is a combination of both java and python, and allows users to control any aspect of the modelling process from start to finish. Microsoft Excel<sup>®</sup> for instance can be used to configure the details of a model, control a set of chosen inputs and then record the outputs of each experiment. The solution results can then be graphed automatically in Excel<sup>®</sup> or in Flux<sup>®</sup> depending upon the desired result.

Flux<sup>®</sup> V10.4 contains several improvements in data processing, allowing for **dramatic reductions in computation time**. One area of improvement pertains to the pre-processing of the data and the formation of the solution matrix. The second area of improvement pertains to **parallel computing**. Flux<sup>®</sup> now allows a user to select the number of the cores that Flux<sup>®</sup> will use for the simulation; users can choose from one core to the maximum available on the given computer.



**Numerous electrical applications can be analyzed and optimized with Flux**

This release of Flux<sup>®</sup> V10.4 now allows 2D, 3D and Skew applications to be directly **coupled for time transient simulation control with MATLAB/Simulink<sup>®</sup>**. Flux<sup>®</sup> is the only FEM software to provide **this versatile coupling between the device behavior and the drives and controls**. This capability allows for more effective overall idea validation as it considers the device as if it truly was in operation.

Several devices with thin walls or plates are better **suited to be modeled by shell elements instead of volume elements**. These elements can have material properties and physics phenomena distributed within according to the appropriate response. Flux<sup>®</sup> has historically pioneered bringing this sort of technology to the user, and Flux<sup>®</sup> V10.4 is no exception. Certain applications within Flux<sup>®</sup> V10.4 now allow for shell elements to be directly connected to an external circuit.

Perhaps the most exciting advances in Flux<sup>®</sup> V10.4 come when considering the post-processing of a solution. Flux<sup>®</sup> now contains the following new capabilities:

- **Local Error Maps** to review the effectiveness of a chosen mesh distribution
- **Import of 2D Curves** to directly compare solutions with measured data or other solutions
- **Unit control** to convert solution data into a more preferred unit
- When using symmetry, the geometry can be re-constructed to show the **full-scale model**
- Solutions can be shown in a variety of **3D Curves** with adjustable legend values
- **Animations** can be created when displaying a series of desired results
- **Reports** can be automatically generated which reflect the full modeling process

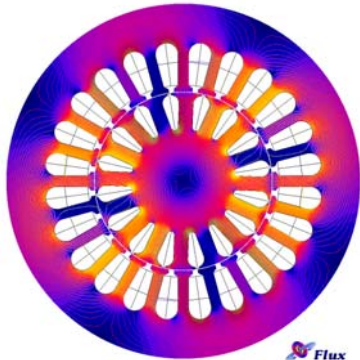
According to Philippe Wendling, Vice President at Magsoft - CEDRAT Group, "A Flux user can perform the desired experiments on their ideas with a minimum of effort, and thoroughly assess the outcome. Innovation is now literally at their fingertips."

<sup>1</sup> Merging the former LEG (Grenoble Power Electrical Laboratory), LEMD (Laboratory of Electrostatics and Dielectric Materials), and LMN (Laboratory of Magnetism of the Ship) in 2007, G2ELab nowadays covers a wide spectrum of expertise in the field Electrical Engineering.

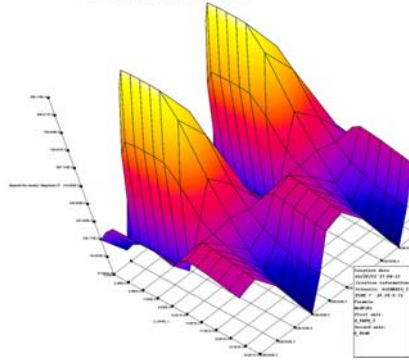
**About CEDRAT S.A.**

CEDRAT S.A. develops and markets leading computer-aided-engineering (CAE) simulation tools. These tools are used by manufacturers to accelerate and manage precise design solutions for devices such as motors, transformers, actuators, and sensors. CEDRAT offers a range of products and services and has comprehensive facilities throughout Europe and Middle-East. News and information are available at [www.cedrat.com](http://www.cedrat.com).

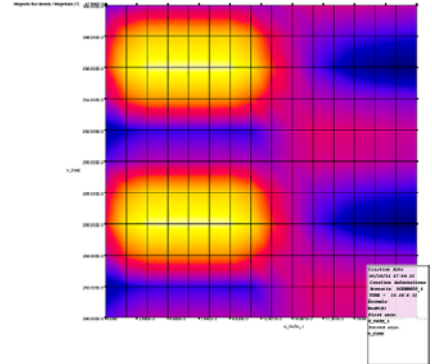
**Example 1: Induction motor with squirrel cage – 2D analysis with Flux 10.4**



Isolines and Isovalues on the device

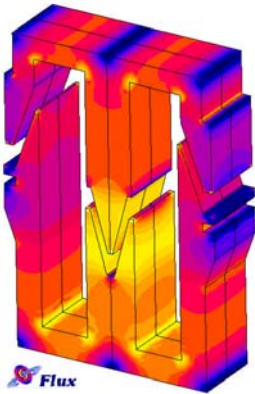


Magnetic Flux density / Magnitude – 3D parameterized curve

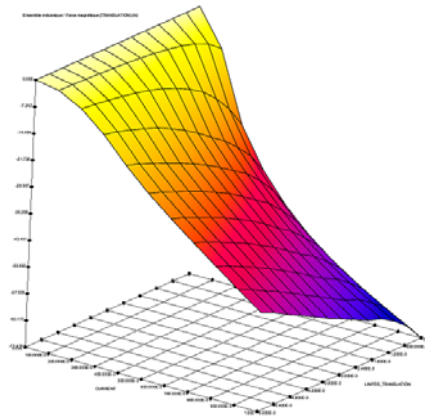


Magnetic Flux density / Magnitude – Planar projection

**Example 2: Linear actuator – 3D analysis with Flux 10.4**



Isolines and Isovalues on the device



3D curve of the magnetic force on the mobile mechanical set

**Contact**