CADFEM®

$$\overline{\Pi} = \frac{1}{2}\sum_e \{u\}^T \cdot [K] \cdot \{u\} - \{u\}^T \cdot \{F\}$$

ANSYS®

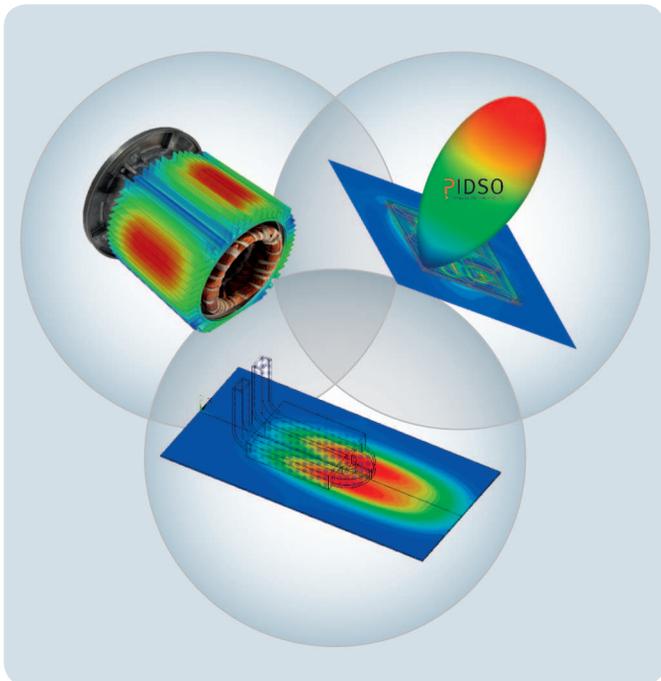**The whole world of simulation**

Computational Fluid Mechanics
Structural Mechanics
➜ Electromagnetics
➜ Systems & Multiphysics

Information Day

Electromagnetics

**Exploit the potential: Use FEA analysis
for your components and systems**

In many areas of today's product development, **simulations** are crucial for the successful implementation of innovative solutions. The functioning of many components is based on the systematic use of field effects for actuators, sensors, signal channels, transformers, and their interaction in the complete system with such factors as motion, heat and vibration.

The systematic use of numerical tools can help us to **understand** and **characterise** physical correlations and interactions in electrical engineering, mechanics and fluid flow.

We will demonstrate how you can **visualise** electromagnetic fields in virtual prototypes in the early development stages. This approach can strongly support you with the implementation of new solutions that are fit for optimisation.

During our Information Day, you will learn about the use of ANSYS across the entire scope of electromagnetic applications.

ANSYS® covers the full application range of simulation in today's product development.

CADFEM Ireland Ltd (formerly IDAC Ireland Ltd) has been the partner of choice to industry, research and academia in Ireland since 1997 for engineering simulation and ANSYS.

CADFEM as ANSYS Competence Center FEM in Germany, Austria and Switzerland collaborates with CADFEM Ireland also in the frame of the TechNet Alliance, a global network of CAE Computer-Aided Engineering experts. CADFEM is also an expert organisation for structural mechanics and multiphysics.

Target audience

This Information Day is aimed at physicists and product development engineers interested in solutions for complex field problems on different scales (LF & HF).

Date and Venue

20th May 2014, The Fitzwilliam Hotel, St Stephen's Green, Dublin 2

ANSYS Competence Center FEM

CADFEM®

Agenda and Content

Begin: 10:00 am
End: 5:00 pm
Attendance fee: Free of charge

- **Reception and introduction of CADFEM Ireland, CADFEM Germany and ANSYS**

- **Theory**
  - Low and high frequency field applications
  - Basics of the FEM Method
  - Analyses in the time and frequency domain
  - Material modelling and nonlinearities

- **Quasi-static/Nonlinear field applications (LF)**
  - Design of electrical drives and actuators
  - Turbulent flow and loss analysis of electrical components
  - Defining characteristic diagrams of sensors (inductive, capacitive)
  - Analysis of parasitic effects

- **Wave propagation phenomena (HF)**
  - EMV for electronic components and joining technique
  - Signal analysis based on PBC and package level (SI)
  - Design of antennas, couplers and filters (RF)

- **Field and system couplig (LF & HF)**
  - Field coupling for cooling and vibration will be demonstrated with an example of electrical machines (waterfall diagram)
  - Detailed system simulation using FEA-based generation of behaviour models (Reduced Order Models)
  - Transient co-simulation and analysis of systems shown on the example of a hydraulic valve - Heat development and strain for HF applications

- **Summary – Conclusions**

About CADFEM

ANSYS and a vast competence in CAE Computer-aided Engineering – this is what the CADFEM brand stands for since 1985 in Germany, Austria and Switzerland. CADFEM offers a complete portfolio of leading software tools for numerical simulations, including all product-supporting services such as seminars, support and consulting.

www.cadfem.de

About CADFEM Ireland

CADFEM Ireland Ltd (formerly IDAC Ireland Ltd) is an indigenous Irish company which specialises in engineering simulation solutions. The core of our business is simulation. We offer the ANSYS suite of technologies in Ireland along with full training for the same complemented with our expert advice and a diverse range of consultancy services.

www.cadfemireland.com

About ANSYS

ANSYS offers cutting edge technology for numerical simulation based on one and the same data model in a uniform user environment for all physical disciplines. Scalable to the specific requirements of the user, ANSYS can be integrated, in a flexible manner, in existing development structures. Moreover, it can be coupled seamlessly with CAD-environments.

www.ansys.com

Herewith I register for the Information Day:

Electromagnetics

❏ **20th May 2014, The Fitzwilliam Hotel, St Stephen's Green, Dublin 2**

Your attendance at the Information Day is free of charge.
For organisational reasons we ask you to confirm your registration by completing this form or please register online on the CADFEM Ireland website www.cadfemireland.com (please select Training). Places are limited.

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Company

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UB/Institute

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Department

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Name

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First name

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Street or post no.

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Zip code, city

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Phone

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Fax

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E-mail

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Date, Signature

❏ Unfortunately, we are not available to attend the Information Day. Nevertheless we are interested in the topic. Please contact us.

❏ The topic is of interest to our entire organisation/department. Please contact us to arrange an event at our premises.
(In-house Information Days can be offered based on expected size of audience)

Please register via Internet, email or fax to:

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e-mail blei@cadfemireland.com
www.cadfemireland.com

| Registration |

1st All Ireland ANSYS Users' Meeting

Best practice in the field of Engineering Simulation
11th & 12th September 2014

Engineers Ireland, Ballsbridge, Dublin 4

| Information |

ANSYS Competence Center FEM

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