

Research in the SPEED Laboratory

We need research students to work on projects that will directly or indirectly contribute to the quality and range of the SPEED design software and power electronic control technology.

Project Areas:

1. Software for electric machine design, including:
 - Programming
 - Electromagnetic, thermal analysis and simulation
 - Design techniques especially for new and/or highly stressed machines
 - Numerical analysis including finite element techniques.
2. Power electronic control:
 - Sensorless control
 - Control of highly saturated synchronous/brushless PM machines



The FC3 — SPEED's Flexible Controller



UNIVERSITY
of
GLASGOW



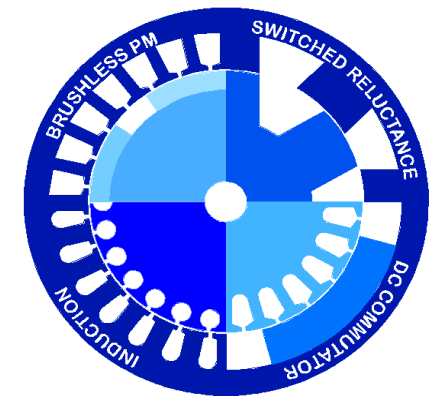
Enquiries: please contact Prof. TJE Miller at:

SPEED Laboratory

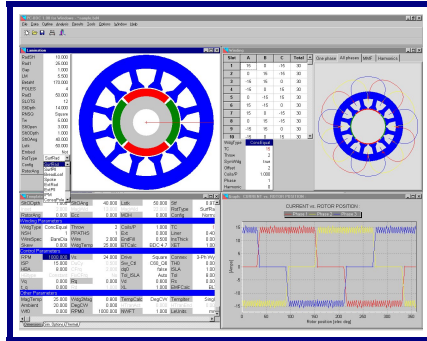
University of Glasgow
Dept. of Electronics & Electrical Eng.
Rankine Building, Oakfield Avenue
Glasgow, G12 8LT, UK
Phone: +44 (0)141 330 3157
Fax: +44 (0)141 330 3158
Email: saffron@elec.gla.ac.uk

SPEED Laboratory

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FAQ's about the SPEED Lab.



PM Brushless DC Motor Design Software

Q: What does SPEED Do?

A: Advanced research in electrical machines and drives with the aim of producing the most advanced design techniques for our Consortium members.

It also develops motor controllers and actuation systems.

Q: Who are SPEED's industrial partners?

A: We are independently funded by a consortium of 50 companies in Europe, USA, Japan and South America.

Q: What about funding?

A: Our unique funding structure makes it possible to provide financial support where necessary.

Q: What are the career prospects for SPEED graduates?

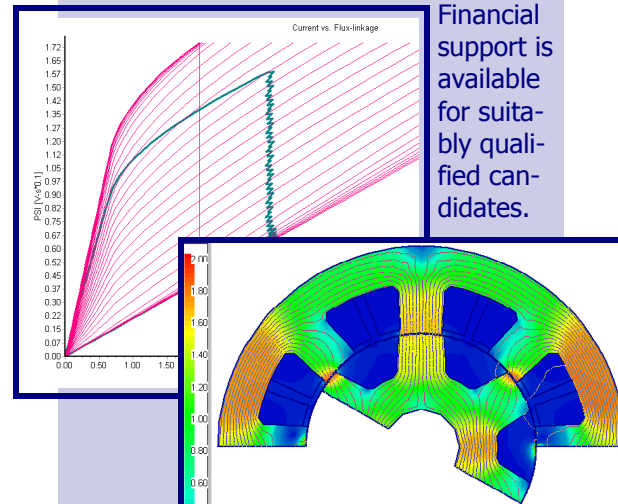
Where are they now?

The majority of SPEED graduates have gone on to work with companies who are members of the SPEED Consortium, all over the world, for example:

Invensys Brook Crompton (UK)
 Control Techniques Dynamics (UK)
 Danfoss A/S (Denmark)
 Delphi Automotive (USA)
 Emerson Motor Company (USA)
 General Electric Company (USA)
 Grundfos A/S (Denmark)
 IMRA (Europe) SA (UK/Japan)
 NSK Limited (Japan)
 TRW Automotive (UK and USA)

Who should apply?

Candidates should have a good quality first degree in electrical engineering, physics, mathematics or mechanical engineering.



Switched Reluctance Machine Analysis

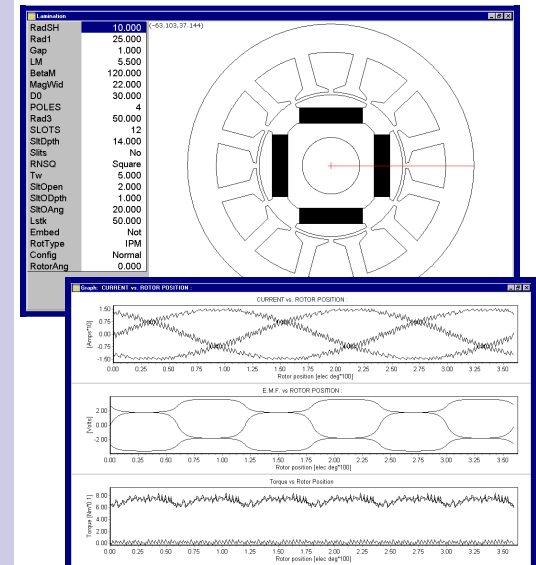
Financial support is available for suitably qualified candidates.

SPEED's Core Research

- Design of electric machines, with advanced analysis software
- Associated power electronic controllers

Recent examples of Ph.D. Research Projects:

- The flux-MMF diagram technique and its applications in analysis and comparative evaluation of electrical machines
- Sensorless control of switched reluctance motor drives
- Study of fault and generating operation of the switched reluctance machine
- High performance control of switched reluctance motors
- Analytical methods for simulating the dynamic behaviour of electromagnetic devices— actuators and solenoids.



Permanent-Magnet Motor Analysis