



**UNSW**  
SYDNEY



## High Speed Switched Reluctance Machines

**Switched reluctance machines offer many advantages in high speed rotating applications, particularly low phase number and low pole number machines, for example the 4/2 machine.**

### Competitive advantage

- Experts in high speed, fault tolerant, technology
- Knowledge of a wide range of prototyping capability from sub-kW to 50kW
- Leading-edge tools for the analysis, design and fabrication of novel rotors using 3D printing

### Impact

- The rotor is robust, being a single stack of laminations requiring no windings or permanent magnets. This allows the rotor to spin at high speeds. The windings can be manufactured separately then mounted in the machine, which reduces size and cost
- The potential for very high-speed motors and generators, up to 50,000 rpm

### Successful applications

- Applications in electric vehicle powertrains
- White-good applications
- Vacuum pumps

### Capabilities and facilities

- Switched reluctance electrical machine design experience
- Fault-tolerant machine design techniques
- Low-phase number drives and controls

### Our partners

- Bao Feng Industries

### More Information

Professor John Fletcher

School of Electrical Engineering and  
Telecommunications

T: +61 (0) 2 9385 6007

E: [john.fletcher@unsw.edu.au](mailto:john.fletcher@unsw.edu.au)

UNSW Knowledge Exchange

[knowledge.exchange@unsw.edu.au](mailto:knowledge.exchange@unsw.edu.au)

[www.capabilities.unsw.edu.au](http://www.capabilities.unsw.edu.au)

+61 (2) 9385 5008