IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Engineering
Department of Electrical
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Multiple Ph. D. and M. S. Positions Available (Electrical Engineering)

In the Department of Electrical and Computer Engineering at Iowa State University, multiple Ph.D. and M.S. positions are immediately available in the field of nanomaterials and devices.

The group focuses on the development of multiferroic and ferroelectric materials and topological insulator nanostructures for nanoelectronic and spintronic applications. The research areas include:

1. Growth of multiferroic and ferroelectric materials by pulsed laser deposition.
    - Ferrimagnetic thin films such as cobalt ferrite $CoFe_2O_4$ (magnetostrictive effect).
    - Ferroelectric thin films such as barium titanate $BaTiO_3$ (electrostrictive effect).

2. Development of novel topological thin films and nanostructures by molecular beam epitaxy (MBE) and tube furnaces.
    - Explore new topological insulators with insulating bulk states.
    - Identify and control surface states (doping, gating, etc…).
    - Study topological heterostructures and proximity effects
    - Integrate magnetic materials with topological insulators for novel device functionalities.

3. Device fabrication and characterizations (traditional photolithography and high resolution *e*-beam lithography).
    - (Magnetic) sensors and novel nanostructure transistors.

Qualifications:
Students with a background in Materials Science, Electrical Engineering, and Physics are encouraged to apply. Knowledge in semiconductor device physics and quantum mechanics would be advantageous. The successful Ph.D. candidates will be offered research assistant positions with a yearly salary of ~$18,000 and a full tuition support of ~$25,000. Financial supports for M.S. students may be available depending on qualifications and experience.

Contact information:
For enquiries and applications, please send a full CV and transcript(s) to Professor Faxian Xiu.

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