



## Research Assignment - 2007

Principal Investigator Nian Sun

Title Assistant Professor

College/Department College of Engineering/Electrical and Computer Engineering

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Title of research assignment

### Novel magnetoelectric materials and devices

Research abstract

Our research areas include different topics, such as magnetic, ferroelectric, and magnetoelectric thin films and micro-devices for RF and microwave wireless communication applications.

We will try our best to match the interests of the RET participants with the different projects in our group. The active projects are:

1. Spin-spray coating of multiferroic films
2. Magnetoelectric composite substrate for patch antenna applications
3. Magnetoelectric materials based microwave filters

Teachers are expected to work side by side with a graduate student on this project. You will be fully trained, make your materials and do your own measurements. This will lead to technical papers out of your own work, and make your own contributions,

RET participants can feel free to choose any topic(s) among the listed projects according to his/her own interests. Further information is available by contacting Nian Sun at phone: 617-373-3351 or by email at: [nian@ece.neu.edu](mailto:nian@ece.neu.edu)

## Research activities/ experience

RET participants will be working in the Center for Microwave Magnetic Materials and Integrated Circuits at the Electrical and Computer Engineering Department. This is a friendly environment with 4 faculties, 3 post doctoral scientists, ~15 graduate students, ~15 undergraduate students.

RET participants will get unlimited access to discussions with the faculties for research guidance, and well trained on all facilities needed for the research project. We typically pair each of the RET participants with one post doctoral scientist and one experienced graduate student for the daily training of all facilities in our labs, data analysis, and technical writing.

Typical research experience involves materials preparation, characterization, device fabrication and characterization, data analysis, and technical paper writing. Research results will be submitted to technical journals for publishing.

## Expectations of RET

We have a quite flexible schedule depending on individual preferred arrangements. We do hope that the RET participants be in the labs on a regular basis. We expect that the research results will appear in technical journals.

Special skills or interests that would help a RET participant with this assignment (i.e., an interest in physics, experience with specific laboratory equipment, etc.)

Interests in physics, chemistry, and hands-on experiments with materials, device fabrication, characterization, and data analysis.

Lab safety/issues unique to this assignment.

A general Safety Overview from Environment Health and Safety is enough.

Research/Lab Summer Hours	10:00 a.m. – 6:00 p.m.	<input type="checkbox"/> Monday through Thursday		
		<input checked="" type="checkbox"/> Monday through Friday		
Scheduled Research/Lab Meetings	1:00 pm – 3:00 pm	<input type="checkbox"/> Daily	<input type="checkbox"/> Wednesday	<input type="checkbox"/> To be determined
		<input type="checkbox"/> Monday	<input type="checkbox"/> Thursday	
		<input type="checkbox"/> Tuesday	<input checked="" type="checkbox"/> Friday	

Lab/research project URL

[www.ece.neu.edu/faculty/nian](http://www.ece.neu.edu/faculty/nian)

Research/Lab Supervisor Nian Sun

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