

Elizabeth Joan Kowalski



Graduate Institution: Massachusetts Institute of Technology

Graduate Discipline: Electrical Engineering

Hometown: Beaver, PA

Relevant SC Research: Fusion Energy Sciences

Research Interest:

I am interested in understanding electromagnetic phenomena and working with high-power, high-frequency vacuum electronic devices. Particularly, I am interested in novel designs of interaction structures at higher frequencies to solve electrical and mechanical problems. I am interested in devices that are able to function in THz frequency ranges at high powers. These devices are useful for such high power applications as plasma heating (for fusion), spectroscopy, and communications.

I am engaged in studying over-sized cylindrical waveguide transmission lines for ITER, a large-scale fusion reactor. These waveguides will transport 1-MW of power at 170GHz for Electron Cyclotron Heating in the ITER plasma. I am also designing and building a novel, over-moded 94 GHz Travelling Wave Tube (TWT) Amplifier. This TWT design will investigate the uses of over-moded structures in high-power, high-frequency vacuum electronics.

About Me:

I am a student member of IEEE and the Society of Women Engineers (SWE). I am a member of the Penn State Alumni Association.

At MIT, I have been on the Executive Board of Graduate Women at MIT (GWAMIT) since January 2010: first, as Secretary and now, as Membership Chair. GWAMIT provides personal and professional development of MIT Graduate Students. As Membership Chair, I am involved in giving the group direction in content and events while I keep a focus on membership involvement and engagement.

I have also been involved in the MIT Women's Initiative, where I presented to middle school girls about engineering. By leading a hands-on activity and showing the students what I do as an engineer, I hoped to show them that math and science are interesting and that engineering is a rewarding career.

Outside of the lab and student groups, I enjoy literature, tai chi, and baking.



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