Partnerships & Collaborations:

Not only does APTech have facilities for growing single crystals of refractory metals, LaB_6 & CeBix® and metal carbides, but we also have a diverse team of scientists who are experts in the field of electron emission processes, surface physics, and electron charged particle optics. Additionally, APTech has a strong history of partnering with end-users, OEMs and government research agencies. We are always looking to collaborate on new projects and products with universities or other companies. Our team can assist with technical expertise, provide design feedback, modeling work and much more.

R&D Capabilities:

- Work function measuring systems; photoelectron, thermionic, and absolute (or FERP)
- Custom film deposition system (up to 6" wafer) with multi-component deposition control and monitoring. Fill materials include; Mo, Nb, Pt, Hf, Ni, Ni-Nb, Au, Y, Mg, Ti, Si, C, ZrC, HfC, NbC, TiC, LaB_6, SnO, and others
- Field emitter array deposition including liftoff layer and multi-part emitter options
- Auger surface analysis
- SEM with EDX - Energy Dispersive X-ray Spectroscopy
- Thermionic emission measurements and surface analysis
- Field emission measurements over large range of currents and operating atmospheres
- Custom electron or ion optical modeling
- Custom electron or ion gun production including focusing and deflection

Does your company need assistance with a project involving thermionic emission, field emission, or refractory metals? If so, Applied Physics Technologies could be your solution. Contact APTSales@a-p-tech.com for more information!

www.a-p-tech.com
1600 NE Miller Street • McMinnville, OR 97128 • P: 503.434.5550 • F: 503.434.1312 • E: APTsales@a-p-tech.com

Key R&D Staff

Gerald (Bud) Magera Ph.D. ~ Chief Technical Officer

Bud received his Ph.D. from OGI (Oregon Graduate Institute of Science and Technology, now a division of Oregon Health and Sciences University) in Electrical Engineering in 1993 after attending Linfield College as an undergraduate. The following 13 years were spent at the FEI Company as a Research Scientist in the Beam Technology Division. Bud joined APTech in 2006. Areas of expertise include electron and ion source development, charged particle optics, high voltage systems, vacuum technology, and surface physics and chemistry related to electron and ion emission. Bud has been granted five electron source patents.

Marcus Straw Ph.D. ~ President & CEO

Marcus holds a Ph.D. in Applied Physics from the University of Technology, Sydney (Australia), an M.S. in Electrical Engineering from Portland State University, and a Bachelor's degree from Clark University in Worcester, MA. He has over 20 years of experience driving advanced technology efforts in the semiconductor, life science, materials science, and natural resources markets. His long track record leading all aspects of complex innovation programs - including technology scouting & assessment, technology development, and strategic market analysis - has led to 11 patents and numerous peer reviewed publications. Marcus has a broad background in lasers, charge particle optics, plasma diagnostics, spectroscopy, and surface physics.

William Mackie Ph.D. ~ Founder & Sr. Scientist

Bill received his Ph.D. from OGI (Oregon Graduate Institute of Science and Technology, now a division of Oregon Health and Sciences University) in Applied Physics in 1987. He joined the faculty at Linfield College, his undergraduate alma mater, where he conducted research on transition metal carbides at Linfield Research Institute. He has a lengthy list of publications in the areas of transition metal carbides, field emission cathodes, thermionic sources, and thin film uses of refractory materials. Along with his full-time duties at Applied Physics Technologies, he is also a professor emeritus of physics at Linfield College and a former director of the Linfield Research Institute.

Expertise

- Long history of thermionic and field emission research
- Surface physics and work function analysis as applied to field emission and thermionic emission cathodes
- Field and thermionic emission materials and cathode fabrication
- Structured field emitter array cathode deposition
- Field emission and thermionic cathode testing in UHV, Ar, O_2, CO_2 or other atmospheres
- Coating FE and FEA cathodes with thin films for performance enhancement
- Supplier of oriented single crystals of refractory metals, carbides, and borides

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