

The Role of
Electronics Shops

Blaise Thompson

Research Shops

Custom Research
Electronics

Instrument &
Appliance
Maintenance

Electrical Safety

Thank You

The Role of Electronics Shops

In a Research Environment

Blaise Thompson

University of Wisconsin–Madison

2024-04-10



What is a research electronics shop?



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UW-Madison Department of Chemistry



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three shops:

- ▶ machine
 - ▶ three full time staff
 - ▶ specialty focus on pump repair
- ▶ glass
 - ▶ two full time staff
- ▶ electronics
 - ▶ two full time staff
 - ▶ four student workers



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Electronics at UW-Madison Chemistry

- ▶ here for as long as anyone can remember
 - ▶ at least 50 years
- ▶ historically much larger group
 - ▶ more than seven full time staff, at peak
- ▶ construct, repair, assist



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UW-Madison Department of Physics

UNIVERSITY of WISCONSIN-MADISON : physics

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Electronics Shop

The Physics Electronics Shop does not sell parts to the public. We don't do repairs for the public.

[3336 Chamberlin Hall](#)

1150 University Ave.

Madison, WI 53706

Phone: (608) 262-0527



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Jonathan Amy Facility for Chemical Instrumentation

The Amy Instrumentation Facility (JAFCI) is dedicated to the fusion of engineering expertise with the quest for scientific knowledge to further research and instructional efforts in the Department of Chemistry and School of Chemical Engineering at Purdue University. Our team of scientists and engineers provide assistance in the design / construction of specialized instrumentation not commercially available along with repair / modification of commercial systems.





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Electronics Shop



The Electronics Shop ([Bagley Hall](#) room 74) supports graduate teaching activities and research.

All staff are skilled in design, development, construction, repair and maintenance of scientific apparatus and



Chemical and Biological Engineering

COLLEGE OF ENGINEERING AND APPLIED SCIENCE

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Instrument Shop

For over 16 years the professional research Instrument Shop at the Department of Chemical and Biological Engineering has provided mechanical and electrical design and fabrication services at CU Boulder. The experienced staff provides solutions for instructional and research needs for any department or college at highly competitive rates. The Instrument Shop is collectively comprised of a machine shop and electronics shop, both of which are located in the basement level of the Jennie Smoly Caruthers Biotechnology Building.

In short, the shop's primary mission is to help the labs and researchers get the custom tools and instruments they need to successfully complete their projects, from problem to solution. Contact the shop staff with the details of your project.

Tools, components, and instruments

Instrument Shop Equipment and Products

Instrument Shop Staff

Dragan Mejic
Shop Manager, Instrument Maker /
Fabricator
dragan.mejic@colorado.edu
(303) 735-5901

Deepak Dileepkumar
Electronics Engineer
deepak.dileepkumar@colorado.edu
(303) 492-8125

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Electronics Engineer
dana.hauschulz@colorado.edu

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David Emala

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Indiana University Bloomington



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Department of Chemistry



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Electronics

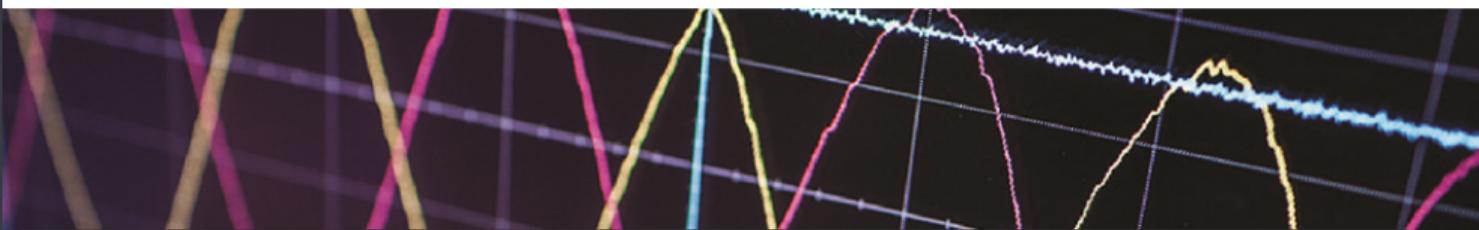
CHEMICAL RESEARCH INSTRUMENTATION TEACHING & CORE LABS | CRITCL

Location

Room C249, Kenan Laboratories, second floor.



Core Facilities



Instrument Design and Fabrication

ASU Core Research Facilities

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Department of Chemistry



IN THIS SECTION

Electronics Shop

The Electronics Shop has a variety of equipment available for research and teaching.

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Custom electronics for research?



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ORIGINAL RESEARCH
published: 10 July 2020
doi: 10.3389/fpls.2020.01015



The XyloTron: Flexible, Open-Source, Image-Based Macroscopic Field Identification of Wood Products

Prabu Ravindran ^{1,2*}, Blaise J. Thompson ³, Richard K. Soares ^{1,2}
and Alex C. Wiedenhoef ^{1,2,4,5}

¹ Center for Wood Anatomy Research, USDA Forest Products Laboratory, Madison, WI, United States, ² Department of Botany, University of Wisconsin, Madison, WI, United States, ³ Department of Chemistry, University of Wisconsin, Madison, WI, United States, ⁴ Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN, United States, ⁵ Departamento de Ciências Biológicas (Botânica), Universidade Estadual Paulista, Botucatu, Brazil



Forests, estimated to contain two thirds of the world's biodiversity, face existential threats due to illegal logging and land conversion. Efforts to combat illegal logging and to support sustainable value chains are hampered by a critical lack of affordable and scalable

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xylotron picture here please





Review of Scientific Instruments

ARTICLE

scitation.org/journal/rsi

Multichannel gas-uptake/evolution reactor for monitoring liquid-phase chemical reactions

Cite as: Rev. Sci. Instrum. 92, 044103 (2021); doi: [10.1063/5.0043007](https://doi.org/10.1063/5.0043007)

Submitted: 5 January 2021 • Accepted: 28 March 2021 •

Published Online: 15 April 2021



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ABSTRACT

gas uptake picture here please





April 1, 2024 at 20:33:38 (UTC).
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pubs.acs.org/OrgLett

Letter

Versatile Open-Source Photoreactor Architecture for Photocatalysis Across the Visible Spectrum

Philip P. Lampkin, Blaise J. Thompson, and Samuel H. Gellman*



Cite This: *Org. Lett.* 2021, 23, 5277–5281



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ABSTRACT: Adoption of commercial photoreactors as standards for photocatalysis research could be limited by high cost. We report the development of the Wisconsin Photoreactor Platform (WPP), an open-source photoreactor architecture potentially suitable for general adoption. The WPP integrates inexpensive commercial components and common high-intensity LEDs in a 3D-printed enclosure. Dimensions and features of WPP reactors can be readily varied and configurations easily reproduced. WPP performance is evaluated using literature transformations driven by light of disparate wavelengths.



photoreactor picture here please



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April 1, 2024 at 20:39:16 (UTC).
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ACS Partner Journal



Journal of the American Society for
Mass Spectrometry

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Research Article

The Wisconsin Oscillator: A Low-Cost Circuit for Powering Ion Guides, Funnels, and Traps

Steven J. Kregel,* Blaise J. Thompson, Gilbert M. Nathanson, and Timothy H. Bertram



Cite This: *J. Am. Soc. Mass Spectrom.* 2021, 32, 2821–2826



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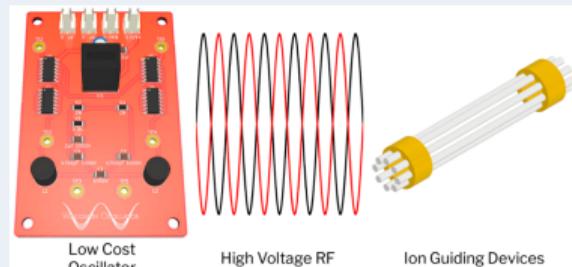
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Supporting Information

ABSTRACT: In this work, we present the Wisconsin Oscillator, a small, inexpensive, low-power circuit for powering ion-guiding devices such as multipole ion guides, ion funnels, active ion-mobility devices, and non-mass-selective ion traps. The circuit can be constructed for under \$30 and produces two antiphase RF waveforms of up to 250 V_{P-P} in the high kilohertz to low megahertz range while drawing less than 1 W of power. The output amplitude is determined by a 0–6.5 VDC drive voltage, and voltage amplification is achieved using a resonant LC circuit, negating the need for a large RF transformer. The Wisconsin Oscillator automatically oscillates with maximum amplitude at the resonant frequency defined by the onboard capacitors, inductors,



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oscillator picture here please



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Repair and maintenance of research equipment.





Amber Bartz
Chemistry Electronics Shop
afbartz@wisc.edu

Check out Amber's poster presentation:
What Researchers Should Know When Powering Lab Equipment

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Shop staff are not safety experts.

Thank YOU ALL.





Blaise Thompson
Chemistry Electronics Shop
blaise.thompson@wisc.edu

We are here to help you use electrical equipment in your research. Please reach out!

Questions?