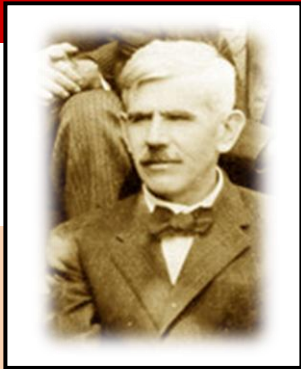


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Courtesy of KUMC Archives

MARSHALL BARBER BACTERIOLOGY

University of Kansas
Medical Center



Marshall Barber 1869 - ?

- Born in Indiana, but was raised in Burlington, in Coffey County. Earned degrees at KU and at Harvard University.
- Bacteriology is the study of bacteria, especially to do with medicine or agriculture.
- In 1904, while teaching at KU, he developed a capillary micropipette (a very tiny glass tube which could be used to transfer or measure very small amounts of liquid). With this he was able to isolate a single bacterium. Using this tool to insert a single bacterium into a lab animal, he also proved that one anthrax bacterium could produce a fatal infection.
- Barber successfully demonstrated what famous French scientist Louis Pasteur had theorized, but was never able to prove—that single microorganisms can cause disease.

EXTRA COOL: Today, with minor changes, Barber's pipette is the main device used to transfer DNA from one cell to another in plant and animal cloning experiments.

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Photo courtesy G. Buffington

GAVIN BUFFINGTON PHYSICS

Fort Hays State University



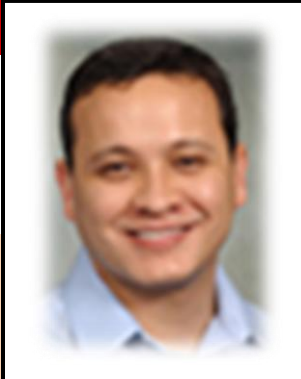
Gavin Buffington current

- Grew up in Frontenac. Degrees in physics from Pittsburg State University and the University of Missouri at Rolla.
- Works with lasers of all kinds from the simple handheld ones to sophisticated ones used in medicine and in the military.
- Researches laser biophysics—the effect of laser energy on human tissue, especially the skin, the cornea and the retina.
- Laser safety is the main concern—safety standards and procedures for medical uses.
- Current research is on blue lasers. Their interaction with tissue is very different from that of red or green lasers which have longer wavelengths. The blue may be more damaging.

EXTRA COOL: "Study mathematics! In my field, mathematics is our language. Without math I would be reduced to 'talking about' science instead of 'doing' science," says Buffington.

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SIGIFREDO CASTRO DIAZ BIOPROCESSING ENGINEERING

Advanced Manufacturing
Institute (AMI)
Manhattan



Sigifredo Castro Diaz current

- Is part of a team of Kansas State University researchers who recently created a system that removes phosphorus from feedlot wastewater and helps the environment.
- Too much phosphate from animal wastewater can pollute water resources and cause algae blooms, a problem found in Kansas lakes and reservoirs recently.
- This system, called "PHRED" for short, causes a chemical reaction in the wastewater, removes 60% of the phosphorus and retains it as pellets. The recycled water can be used for irrigation, it helps prevent water pollution, and conserves our water resources.
- The leftover pellets can be used as fertilizer on lawns, gardens, etc.

EXTRA COOL: Recently was issued a U. S. patent on this system. A patent grants the inventor the sole rights to make, use or sell his invention for a set amount of time.

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Photo credit KSU Photo Services.

DAVID GUSTAFSON COMPUTER INFORMATION SYSTEMS

Kansas State University



David Gustafson current

- Gustafson works with the software in robotics. Software is what gives the robots intelligence.
- The types of software he works with have been used in military robots, for search and rescue or home assistance for the elderly.
- "Science is exciting and always changing. In computer science, we work with ideas and techniques before the general public sees those ideas in commercial products," he says.
- He is also part of a national team of scientists developing software tools for cybersecurity and homeland security.

EXTRA COOL: KSU student robotics teams, of which Gustafson is the faculty sponsor, have twice earned first place at international robotics competitions held at Association for the Advancement of Artificial Intelligence (AAAI) Conferences.

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