



Courtesy of KU University Archives

Mario RIVERA

Chemistry
University of Kansas

Mario RIVERA current

- As a chemist, Rivera studies protein molecules. Thousands of kinds of proteins work together in our body. Some proteins have a heme co-factor—a flat molecule that carries oxygen. It is this oxygen being bound to the heme-iron in a protein in our blood called hemoglobin that gives our blood its red color. Heme-containing proteins work together with other proteins to carry out chemical changes when needed. For example, in our liver these chemical changes detoxify it.
- The antibiotic resistance of some types of bacteria is a cause of public concern. Rivera is studying how proteins made by disease-causing bacteria sap the iron in our body for their own growth. By understanding how bacteria steal and use this iron, it may be possible to develop new drugs that interfere with this process and that bacteria are not resistant to.

EXTRA COOL: Decided he wanted to be a chemist at age 12 when he read about phosphorus, a non-metallic element which sometimes glows in the dark.

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2011 **SCIENCE in KANSAS**
150 years and counting



Photo courtesy of NIAR

John TOMBLIN
Engineering
National Institute for Aviation Research (NIAR)
Wichita State University

John TOMBLIN current

- Earned degrees in aerospace and mechanical engineering. Came to WSU in 1994.
- Was lead investigator on NASA's AGATE project. Research led to development of pre-certification standards for composites commonly used in aerospace. For this work he received the NASA Leadership Award.
- As executive director of NIAR, he oversees 14 laboratories which include wind tunnel, crash dynamics and environmental test labs.
- NIAR's Composites and Advanced Materials Labs provides cost-effective testing and certification for advanced composites and other materials, making Wichita *THE* place to go for such research.

EXTRA COOL: In 2009 WSU was ranked second among all U.S. universities in aeronautical engineering research and development, according to the National Science Foundation.



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Kansas Sesquicentennial 2011



Courtesy of KSU Photo Services

YOUQI WANG
MECHANICAL / NUCLEAR
ENGINEERING
Kansas State University



Youqi Wang current

- Works with manufacturing and advanced materials.
- Developing materials for better body armor for the U.S. military. She starts by studying the thread. What kind to use? How much force can it withstand? Would a yarn be stronger if it is twisted, braided or plain? What kind of weaving will make the strongest material?
- Using information like this, she developed a computer model to simulate how a fabric would behave in a ballistics situation.
- The goal to design thick layers of fabric (maybe as many as 5 or 10 layers) or a 3-dimensional woven fabric that could absorb much of a bullet's energy or split the energy into different directions.

EXTRA COOL: Had her own simple weather station at age ten, recording temperature, atmospheric pressure, rainfall and humidity twice every day.

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Kansas Sesquicentennial 2011



Source: Smithsonian Olmec Legacy website

WALDO R. WEDEL
ARCHAEOLOGY
The Smithsonian Institution
Washington, D. C.



Waldo R. Wedel 1908-1996

- Born in North Newton. Grew up looking for arrowheads along the Sand Creek. Attended Bethel College. In 1936, earned a Ph.D. in archaeology from the University of California.
- Archaeology is the scientific study of past human life and how they lived through clues provided by things they left behind.
- Headed a Smithsonian project during which, over a period of 24 years, over 500,000 miles of the Missouri River Basin were excavated for artifacts. From this, he created a timeline of Great Plains prehistoric cultural groups.
- Also known for his "direct historical approach" which identifies cultural links between modern tribes and prehistoric ones.

EXTRA COOL: Considered by many to be the father of Great Plains archaeology.

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