



## OSU Materials Week - 2011

Next Generation Nanocomposites for fuel efficient lightweight structures



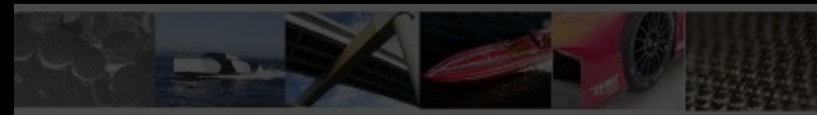
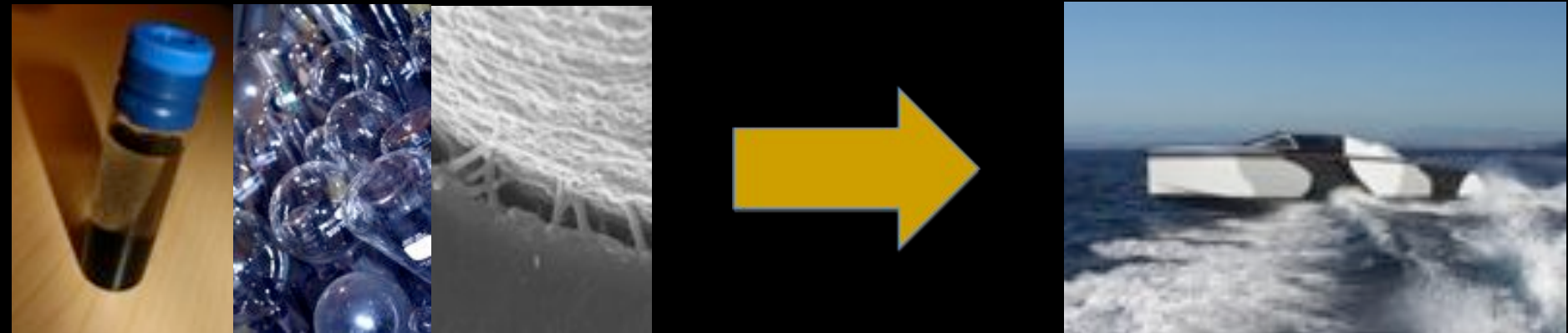
# Who we are and what we do

Technology company in nano-materials and nano-composites

We derive revenue from

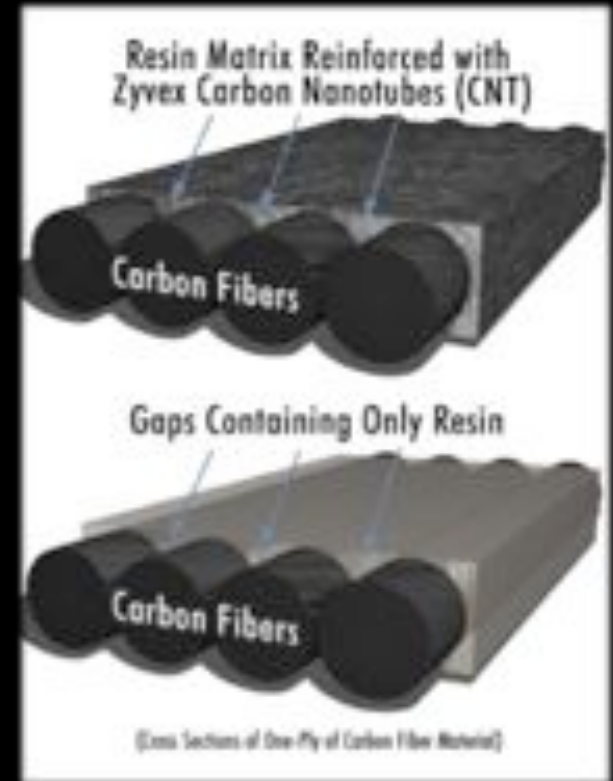
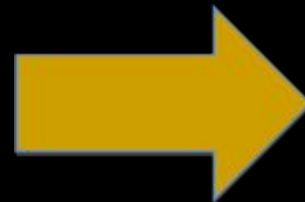
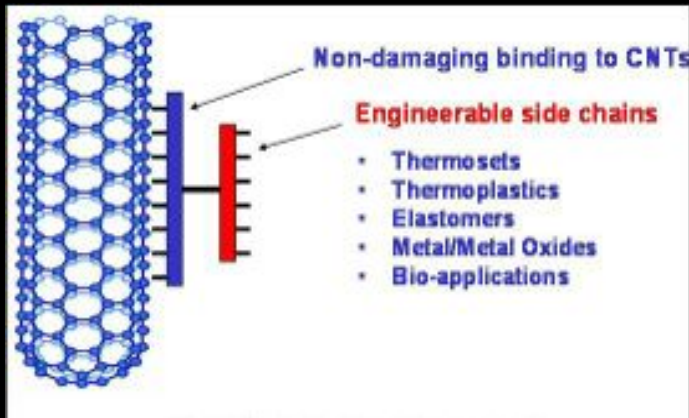
- Formulate and produce high performance composite mtl's
- Design/build of products enabled by our nano-materials
- License of IP and developed nano-chemistry technology

We have a unique ability and technology to take our laboratory science and deliver commercial applications



# Why the technology works

Quite simply, we found a way to make use of carbon nanotubes and other nanomaterials



CNTs are stronger than steel  
CNTs are 1/6 the weight steel

CNTs are believed to be the strongest material known to man



# Making use of the technology

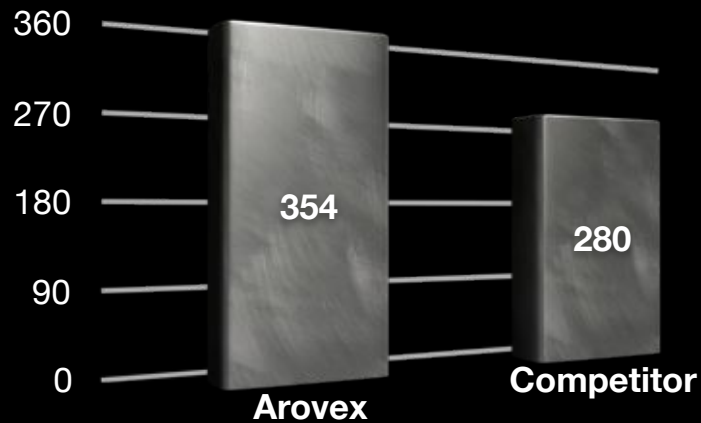
- Once incorporated, you can truly increase the strength/toughness without driving up the costs (too much)
- Create structures that are lighter weight and soon to be multi-functional



# Combining Strength & Toughness

**arovex**<sup>TM</sup>  
next generation prepreg

**Tensile Strength - ksi**



27% Stronger

**Fracture Toughness in-lbs/in<sup>2</sup>**



35% Tougher



# Lightweight structures

- Piranha OMV
- Stats
  - 54' LOA & 11.7' beam
  - weighs in at 8,400lbs
  - carries 15,000lbs
  - 2.5mpg at 25nm/hr



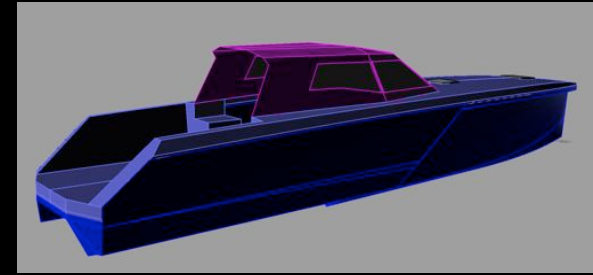
Can carry more than it weighs!



# Lightweight structures in action



# Lightweight structures

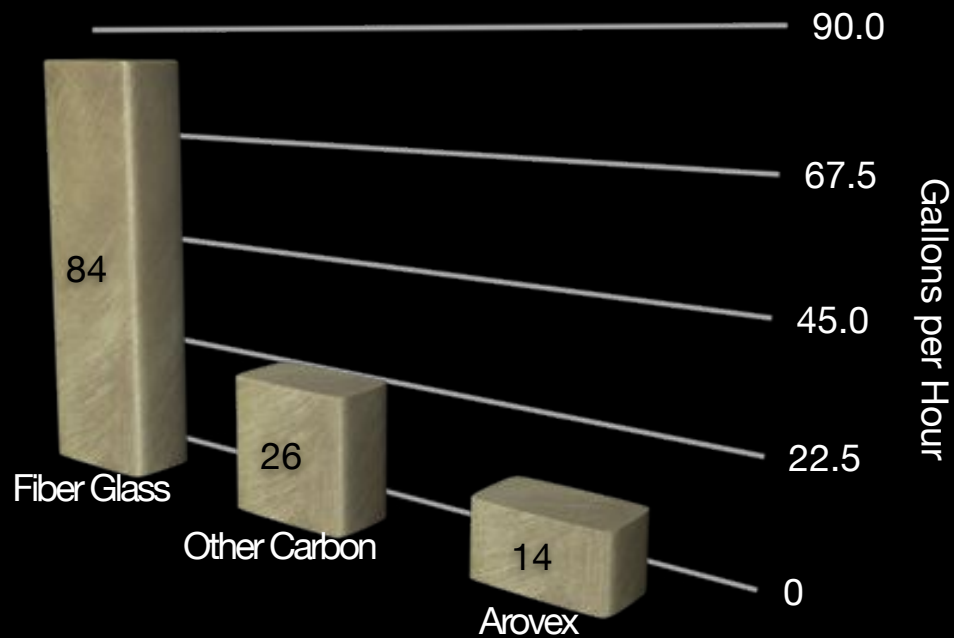
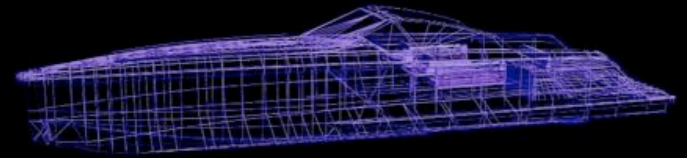


Can carry more than it weighs!



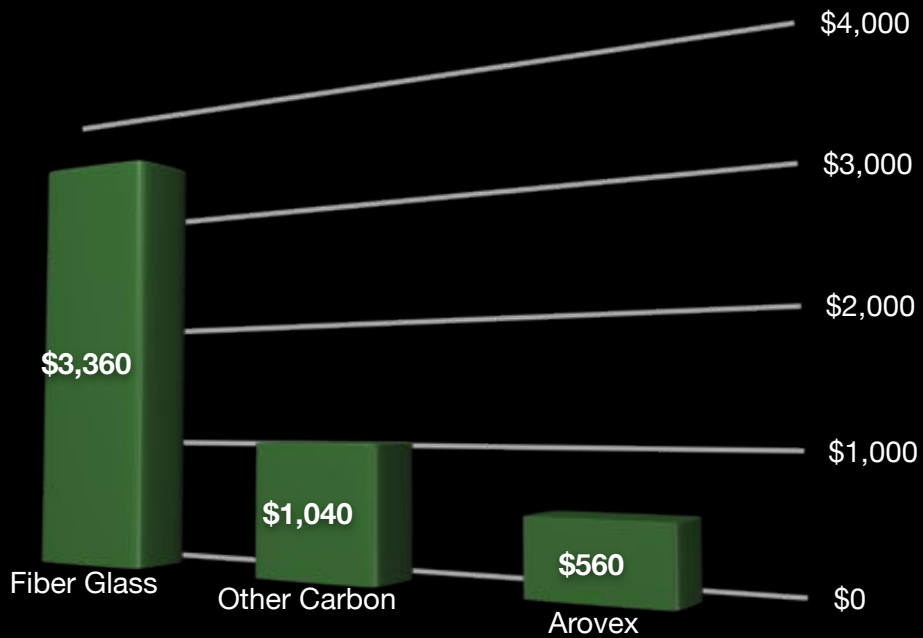
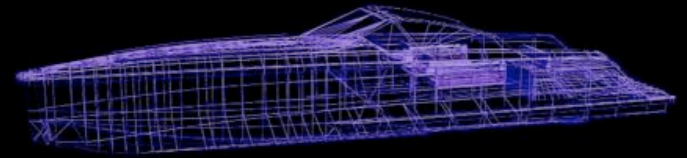
# Fuel efficiency comparison

Fuel consumption of 54' boat at 35mph



# Cost of operation comparison

Fuel costs per 8hr of operation at \$5/G



# What's next for these materials?

- Multi-functionality
  - Damage sensing
  - Sensor capability
  - EMI shielding
  - Tunable performance



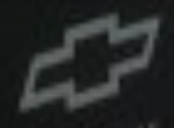
Get composites to perform like metallics  
where desired



Thank you for your time...



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TECHNOLOGIES



Katech

green dot

