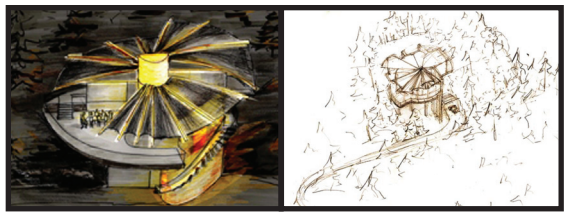
THE ARCHITECTURE (CONT'D)

Team Natural Umbrella

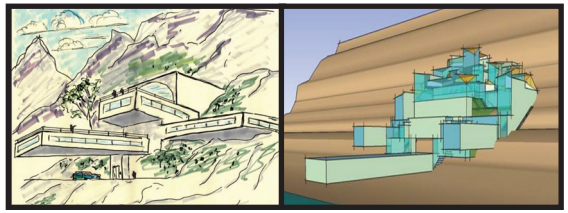
Nanomaterials: Nano-wire paper, quantum dots, nanosensors



Members: Jose Hernandez (IIT), Nicole Holt (BSU), Emily Perchlik (BSU), Jessica Mullendore (BSU)

Team Fleischman

Nanomaterials: Carbon nanotubes, organic light emitting diodes (OLEDs)



Members: Kevin Lerash (IIT), Crystal Lybolt (IIT), Eric Gerding (BSU), Paul Ripley (BSU)

TECHNICAL CHALLENGES

Although these designs may seem outlandish, the materials only need to be proven functional in the lab on a small scale. BSU's major assumption is that the materials will be feasible on a conventional scale within 25 years.

Working with this restraint, several challenges were identified with the materials and designs. Recommendations ranged from severe changes in structure to safeguards that would be unnecessary if conventional materials were used.

RECOMMENDATIONS

Due to the multidisciplinary nature of nanotechnology, a wide range of topics were addressed by our research. Our recommendations about the technology are equally myriad. Only a few of the complex recommendations will be depicted here.

Foremost, an awareness of nanotechnology needs to be raised at governmental, public, and educational levels. New standards are needed for health, safety, education, transport, and manipulation of these materials. This technology should be introduced slowly into the market to prevent sudden disruptions.

Consumers need to be properly educated about the potential risks of what they're buying, as well as a way to opt out. Parallels can be drawn to the reaction toward GMO foods and the corresponding "organic" movement.

CONCLUSIONS

Nanotechnology is still in its infancy. It has the potential to change lives, create amazing products, or expand human capabilities. If proper steps are not taken before nanotechnology develops further, it can also become one of our largest mistakes. Weapons of unimaginable power, humans in contact with toxic products, or any number of unfavorable scenarios could stem from lack of action.

Nanotechnology's time is now. It is up to us to act before an irreversible nightmare is created.

A SPECIAL THANKS TO...

- Everyone enrolled in this IPRO for their hard work and dedication.
- O'Connor Design Works for their assistance.

INSIGHT

Anticipating the Future... Assessing the Impact

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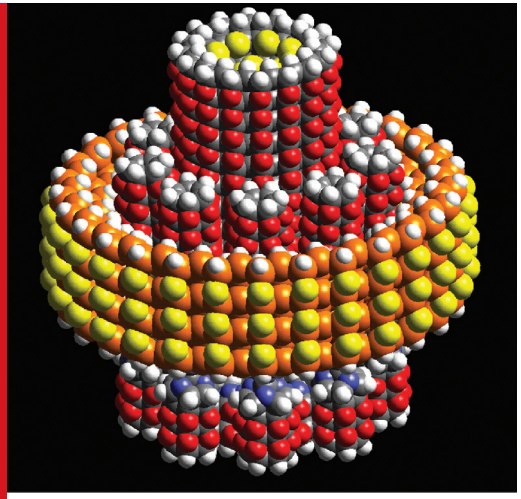
INSIGHT

Anticipating the Future... Assessing the Impact



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PROBLEM STATEMENT:

Our goal is to research the societal implications that might arise from the use of nanotechnology. Through a collaborative effort with Ball State University (BSU), Insight will also explore technical and societal issues associated with nanomaterials in buildings.

OBJECTIVES

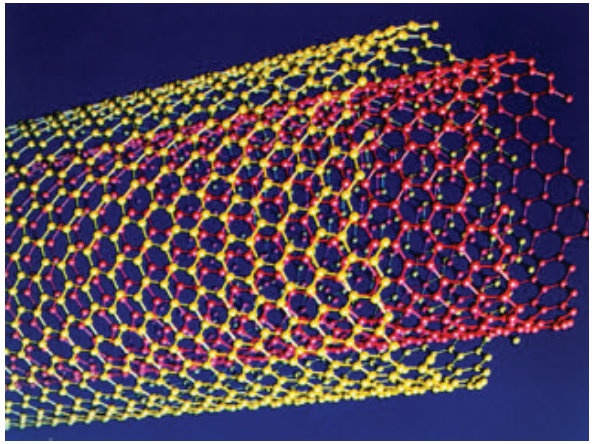
1. Identify nanotechnology concepts and the properties of the materials that the BSU students planned to incorporate into their designs.
2. Detail the possible technical obstacles when integrating these materials into real-world architecture designs created by the BSU students.
3. Research, identify, and analyze societal issues.
4. Detail the collaborative process with off-site team members separated not only geographically, but also in terms of technical and aesthetic knowledge bases.
5. Construct recommendations pertaining to the future of nanotechnology and its integration into society.
6. Apply collaboration and communication tools.

WHAT IS NANOTECHNOLOGY?

Nanotechnology is a technology based on the nanoscale (1/1,000,000,000 of a meter). Scientists are able to construct objects from the ground up, by organizing atoms together one by one, until a larger object is made.

How small is nano?

- Human hair is 50,000 nm in diameter
- The smallest object visible to humans is 10,000 nm
- 10 hydrogen atoms in line equal 1 nm



WHY SHOULD YOU CARE?

Health Risks and Toxicity

Researchers have already determined that some nanomaterials are toxic. Despite this, nanotechnology has found its way into several products. While these products meet conventional safety standards, there are few nanotechnology specific testing guidelines. According to the EPA, only 4% of the government's nanotechnology budget is allotted toward researching health effects of nanotechnology. This is not a situation where we can hesitate: nanotechnology has the potential to be the next asbestos, but on a much grander scale.

Education and Job Markets

Working with nanomaterials requires a very specialized, multifaceted educational background. If nanotechnology is "the next big thing", it has the potential to disrupt the current job market. Millions of people will lack proper training, and few institutions are currently able to serve the multidimensional requirements of education in nanotechnology.

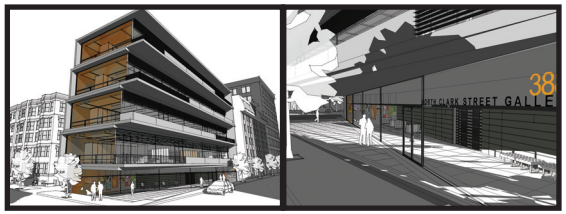
Global Issues

How can legislation of nanotechnology occur at a global scale? Due to the unique, superior properties of these materials, nanotechnology could easily lead to a new arms race. How can people opt out of nanotechnology? Will the global playing field be level?

THE ARCHITECTURE

Team 3884

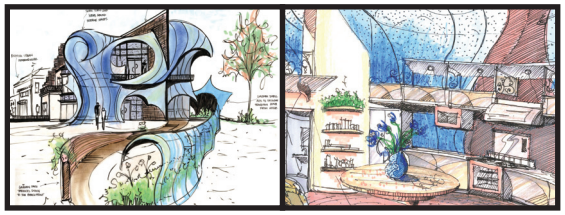
Nanomaterials: Quantum dot lighting, carbon nanotube sheets



Members: Marta Bastrzyk (IIT), Tae Young Kim (IIT), Adam Buente (BSU), Elizabeth Boone (BSU)

Team NanoShell

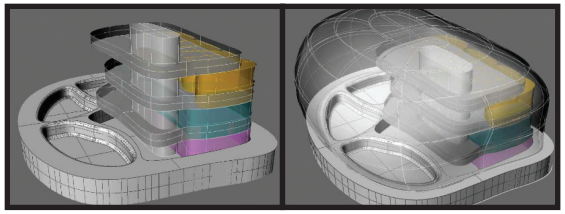
Nanomaterials: Translucent nanosteel, carbon nanotube sensors



Members: Nir Vaks (IIT), Matt Goyak (BSU), Jessica Coleman (BSU)

Team NanoSpa

Nanomaterials: Carbon nanotubes reinforced materials, nanosensors



Members: George Skontos (IIT), Ty Sopko (IIT), Andrew Glass (BSU), Amber Agan (BSU)