

**THE INTERSECTION OF ENGINEERING WITH  
SCIENCE: ARE THERE PARALLELS TO THE  
INTERSECTION OF THESE ACADEMIC FIELDS  
WITH CHRISTIANITY?**

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# **OUTLINE**

**I. INTRODUCTION**

**II. SCIENTIFIC INTERESTS (WITH GODLY  
UNDERPINNING)**

**III. COMPLEMENTING GOD-ENABLED  
ACTIVITIES**

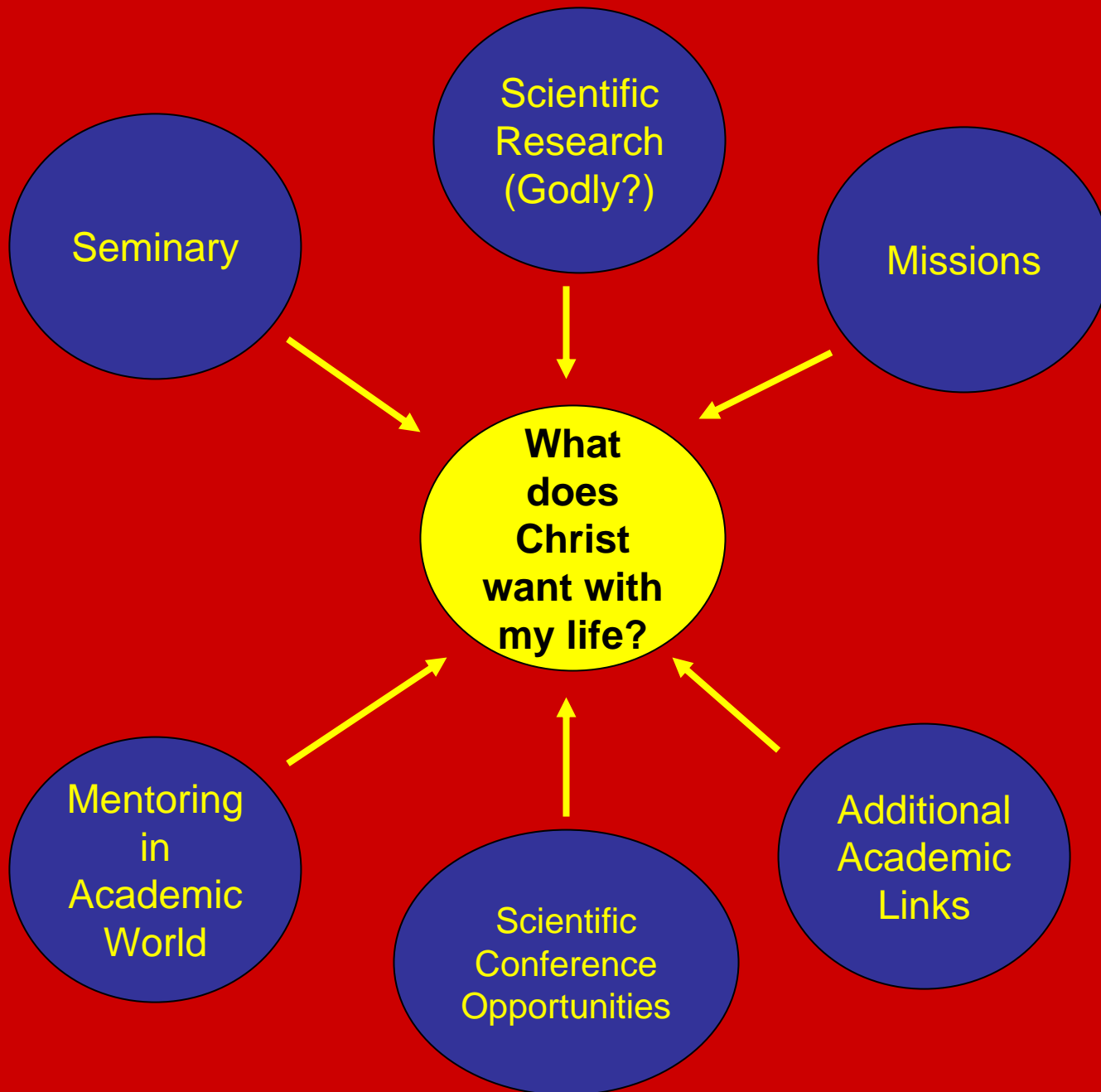
**IV. CONCLUSIONS**

## **Matthew 11:25 (New International Version)**

**25**At that time Jesus said, "I praise you, Father, Lord of heaven and earth, because you have hidden these things from the wise and learned, and revealed them to little children.

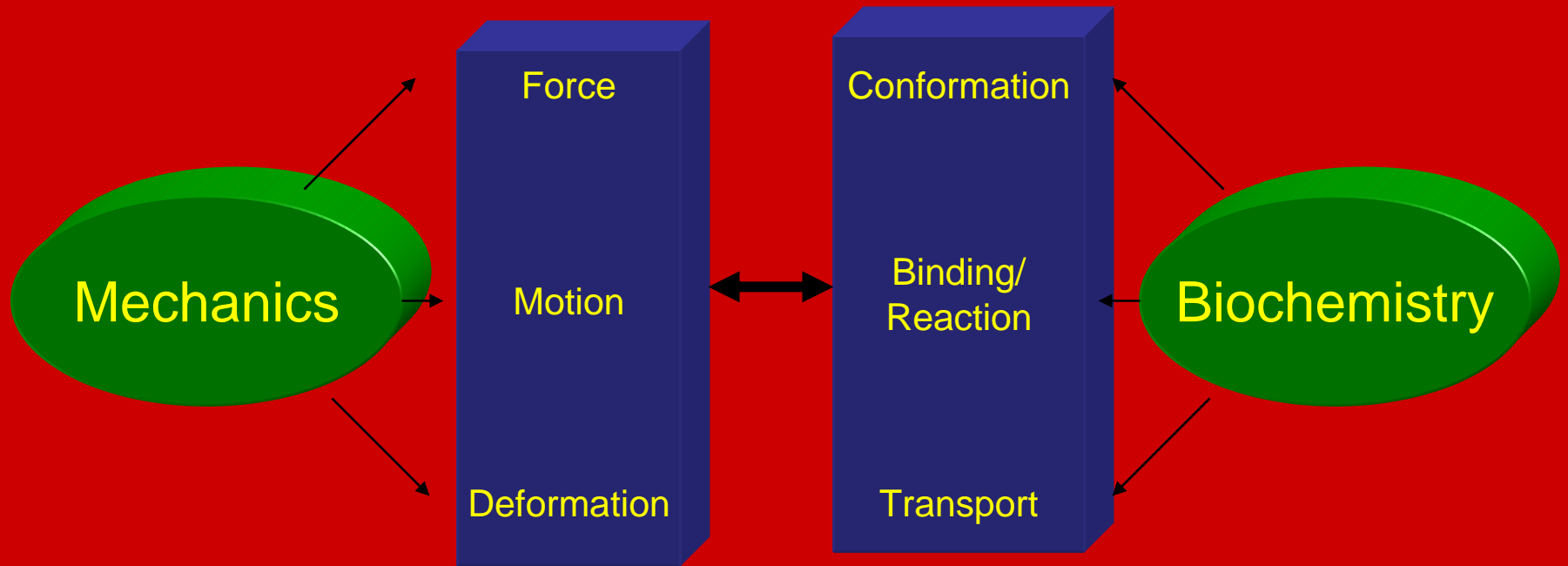
**Both in my scientific life and my Christian life, I have tried to pursue multiple avenues toward a central goal that can be non-traditional:**

- 1. From an engineering perspective this is merging engineering with scientific disciplines (biology, chemistry, physics, computer science, etc.)**
- 2. From a Christian perspective, this is focusing on Christ through many different avenues (next slide)**

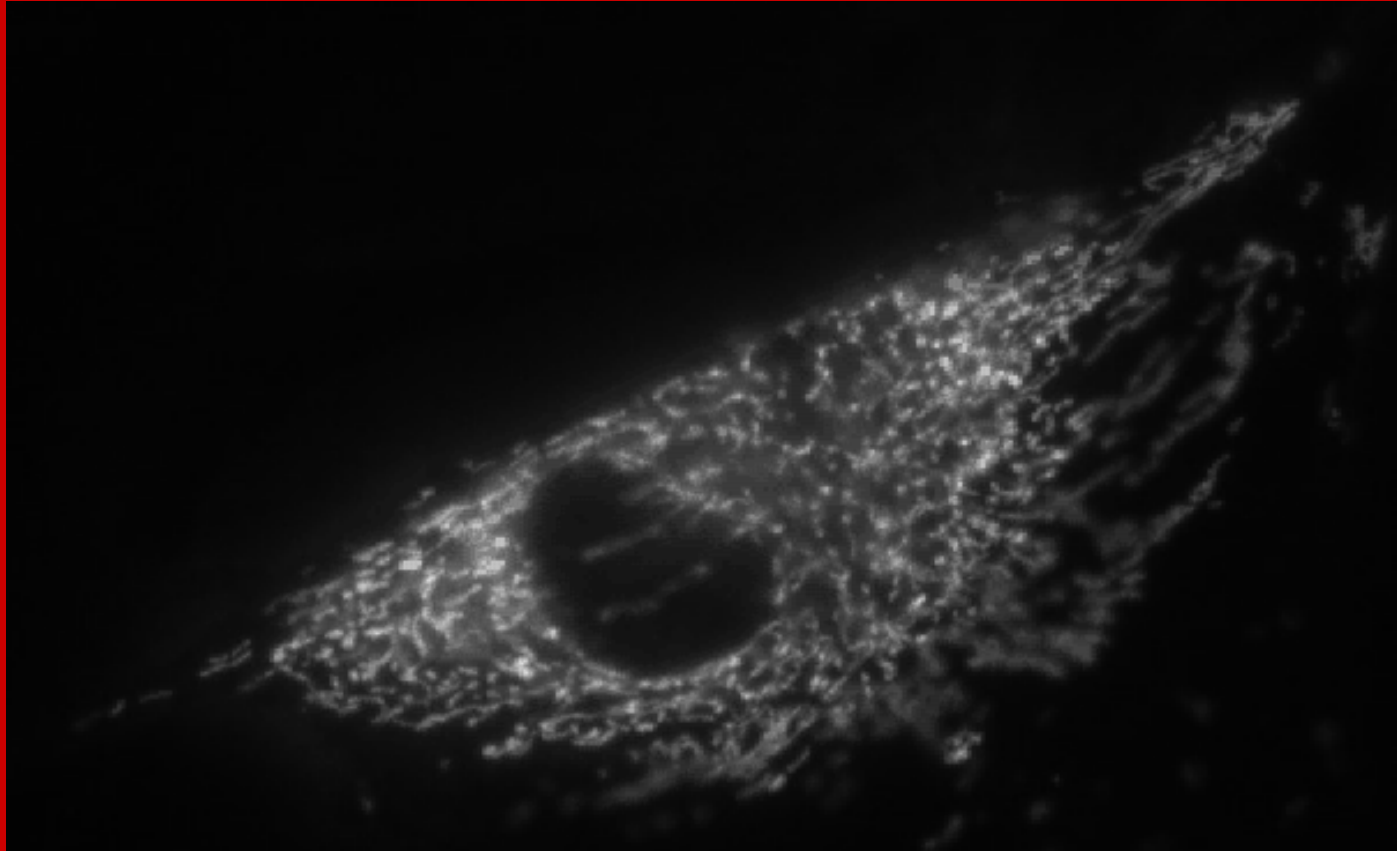


# **SCIENTIFIC INTERESTS (WITH GODLY UNDERPINNING)**

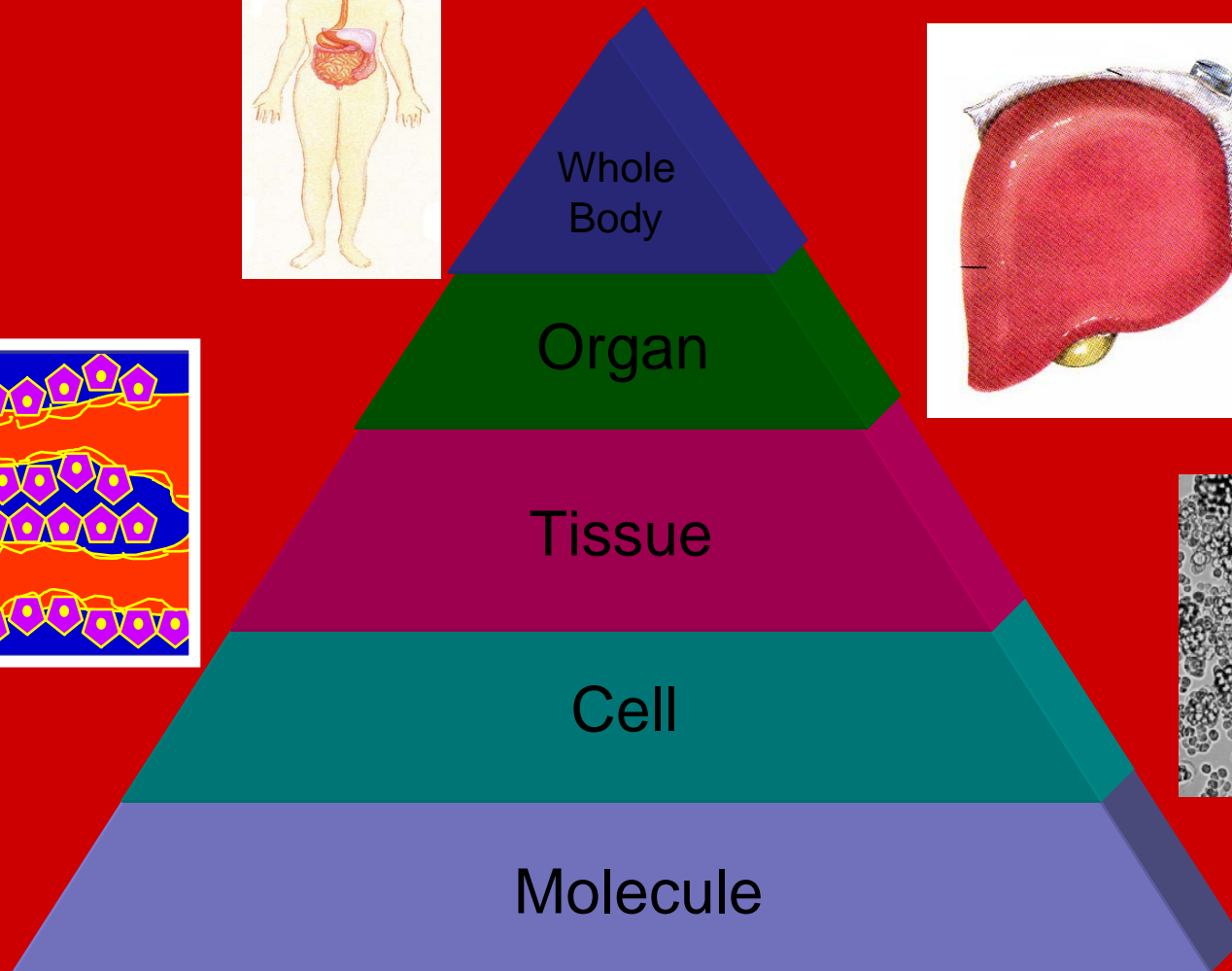
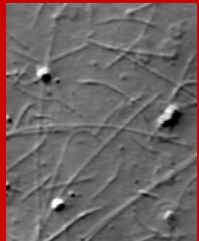
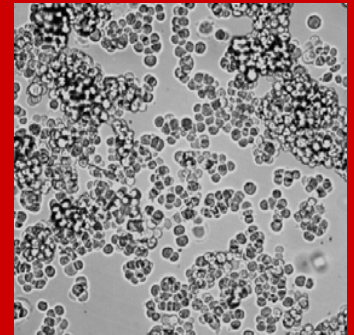
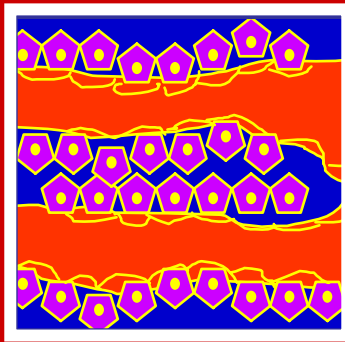
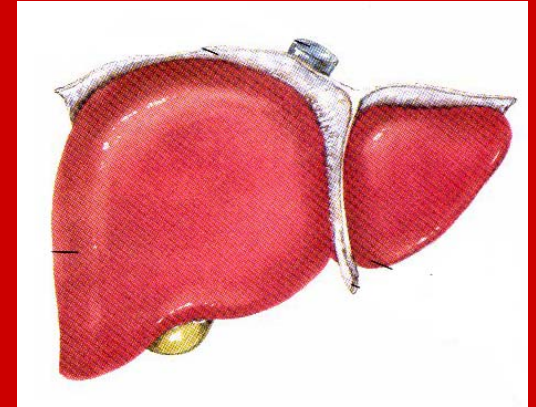
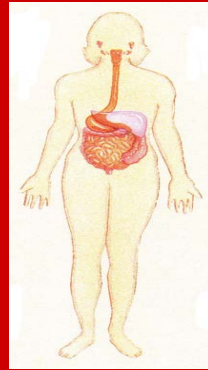
**Ultimate “Design” at the Nano- and Micro-meter  
levels in Cellular and Molecular Mechanics**



**Structural Regulation??**

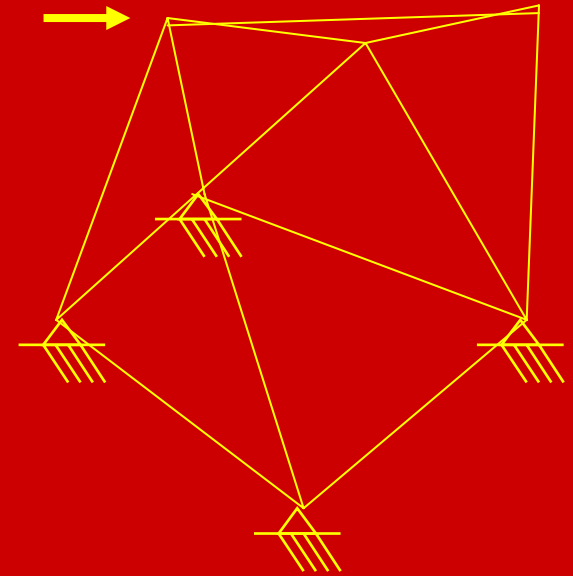
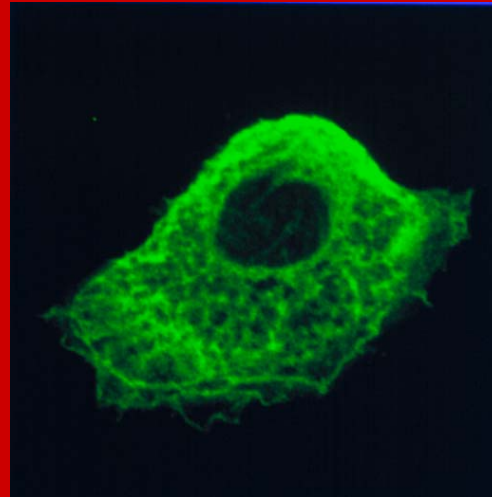
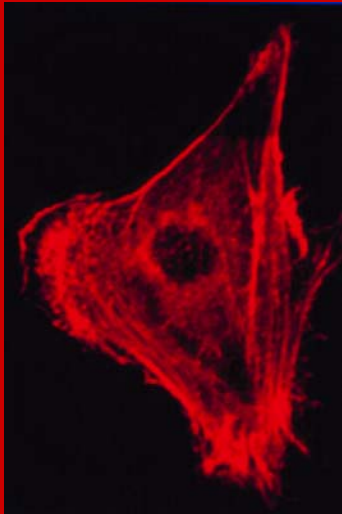
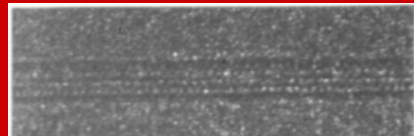
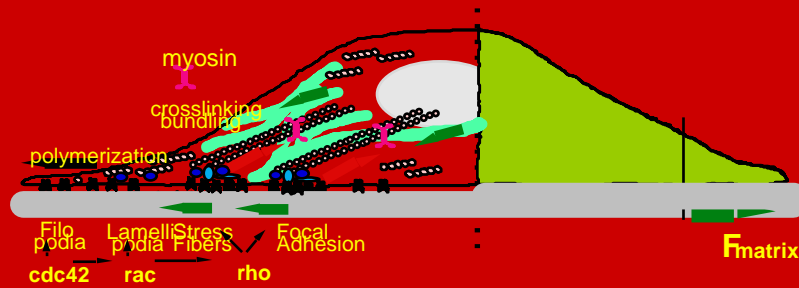






# Cytoskeleton

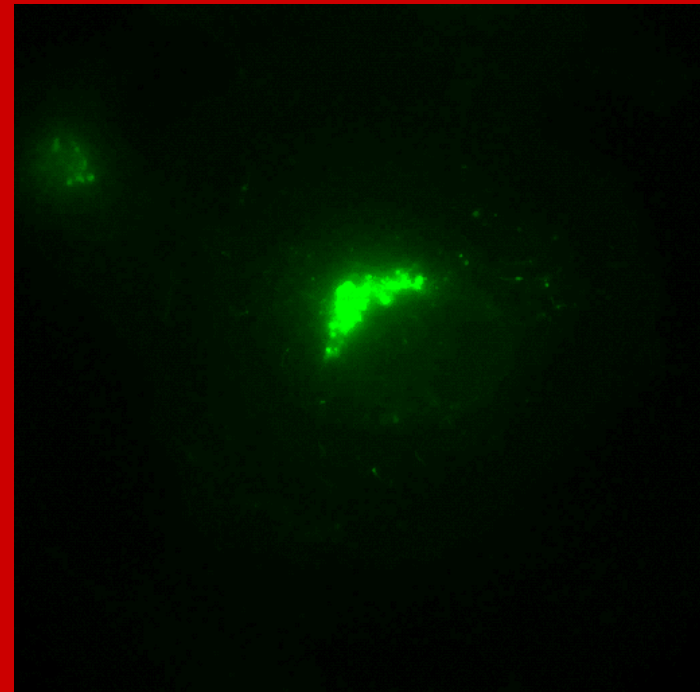
## (Actin Filaments, Microtubules, Intermediate Filaments)



Alberts et al.,  
Molecular Biology  
of the Cell



Vale and Milligan, Science, 2000



$$R = \frac{\sqrt{\left(1 + \left(\frac{dy}{dx}\right)^2\right)^3}}{d^2y/dx^2}$$

$$M = EI \frac{1}{R}$$

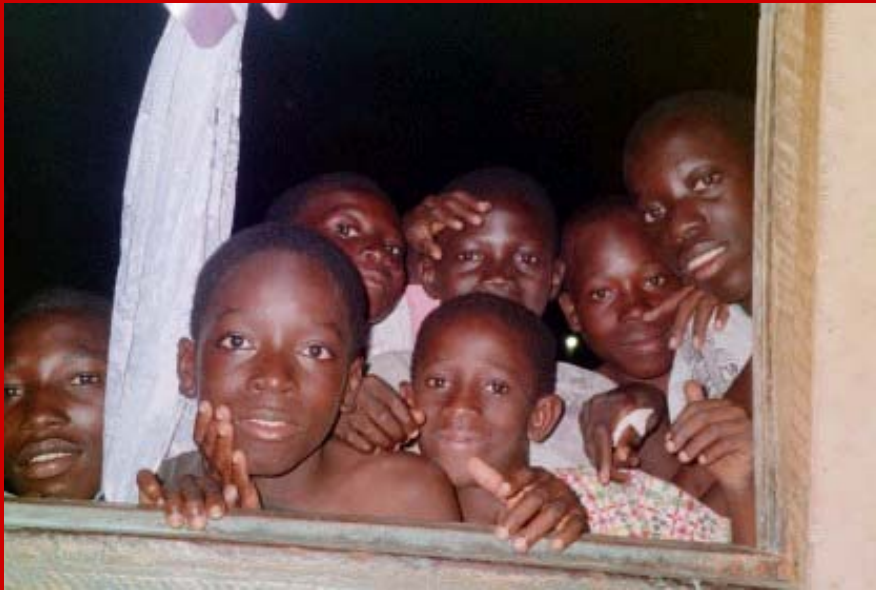
## **COMPLEMENTING GOD-ENABLED ACTIVITIES**

**I am only bringing these instances up as  
examples...please forgive me if they seem  
at all boisterous (this is definitely not my  
intention)**

# Missions

## Ghana

(Power of Evangelical Work)



## Armenia

(Happiness in Simplicity)



## Conferences

- Funny enough-I have 3 podium presentations today starting at 1:15 PM...in Florida in my major annual conference
- National Academy of Science-Frontiers of Science (talked about Seminary at this conference)
- US Congress Convened Panel on Technology in the next Century (issues of right and wrong)
- Just returned from a Gordon Research Conference (seeing all of these people who were amazing such as a Nobel Prize Winner that I know...reinforces my commitment to Christ over any other goal, honor, etc.)

## **Mentoring of Students**

- **Student who had a engagement broken with a person who was also her advisor**
- **Graduate Student who did not pass her qualifiers-came to Christ during this time**
- **Michael Ty (brilliant MD/PhD who tragically died in Boston...a very strong Christian who will be missed dearly)**

## Subtle Christianity in my Academic Life

- At end of each talk, God is listed first in my Acknowledgements
- Write-up of point 3 in NIH Pioneer Proposal revolved around Morality/Ethics in Medical/Biological Research through Seminary Work
- Fred Higgs-Blessing as a Fellow Christian joined our department



## Seminary

- I am after trying to develop and further understand the link between my secular and Christian life
- The seminary is one approach for me to learn from people grounded in Christianity, but with a defined approach (which helps me ground myself)
- Often try to evaluate Christianity with respect to Scientific Method-There are some fundamental flaws with this approach
- Proof versus Belief (an often questioned subject by people in the scientific community)

## **Conclusions**

- **Many areas/approaches where my life focuses back into Christianity**
- **God has enabled me to approach scientific interests with novel directions**
- **These parallel approaches extend to how I try to apply my life in Godly applications**

## Acknowledgements

- God



# THE INTERSECTION OF ENGINEERING WITH SCIENCE: ARE THERE PARALLELS TO THE INTERSECTION OF THESE ACADEMIC FIELDS WITH CHRISTIANITY?

## **ABSTRACT**

As research becomes more interdisciplinary in the fields of today, there is an increasingly busyness in developing new directions that has been distracted many from addressing the fundamental principles of what is right and wrong. As people work in areas that they are not normally trained, the ease at which the accountability can be shifted from field to field is becoming increasingly prevalent. In this perspective, I have been blessed to have been crossing engineering over with the Sciences in interdisciplinary areas such as biology, chemistry, and physics; these intersections have allowed me to find commonalities that have parallels between the secular and Christian worlds. In this, God has placed me in situations where the secular world of highly accomplished scientists (e.g. US Congress convened panels with Nobel laureates, National Academy Frontiers of Science programs) are focused on secular goals while in the background admitting that “right and wrong” seem to be getting confused; this often leads to discussions involving religion and Christianity. Here, I would like to discuss how I have examined some abstractions between engineering and the Sciences along with using these principles to discuss how Christianity crosses over into the secular scientific world with both Christians and non-Christians. Interestingly, it is through my history that God brought me to some of my thoughts including my continuing education at a Seminary and my mission trips in Africa and Armenia. This area in both engineering and scientific disciplines often requires “proof”. This is tenet that I enjoy discussing because of the challenges that it introduces to the secular world.

**CAN I STAY FOCUSED WHILE COVERED A RANGE OF TOPICS...OR SHOULD I FOCUS ON ONE WHERE I AM UNSURE OF MY ABILITY TO ACCURATELY GO INTO DEPTH (PROBABLY TRY TO WEAVE A TAPESTRY OF THE FORMER)**

**CAN I BRING IN THE BIBLE INTO MY TALK...I ABSOLUTELY HOPE TO!**

**Often try to evaluate Christianity with respect to Scientific Method-  
There are some fundamental flaws with this approach**

**Ultimate Design at the Nano- and Micro-meter levels in Cellular and Molecular Mechanics**

**Right or Wrong....Stem Cell Researchers Issues**

**Focus on “belief” rather than “proof”**

## Matthew 11:20-26 (New International Version)

### Woe on Unrepentant Cities

20Then Jesus began to denounce the cities in which most of his miracles had been performed, because they did not repent. 21"Woe to you, Korazin! Woe to you, Bethsaida! If the miracles that were performed in you had been performed in Tyre and Sidon, they would have repented long ago in sackcloth and ashes. 22But I tell you, it will be more bearable for Tyre and Sidon on the day of judgment than for you. 23And you, Capernaum, will you be lifted up to the skies? No, you will go down to the depths.[a] If the miracles that were performed in you had been performed in Sodom, it would have remained to this day. 24But I tell you that it will be more bearable for Sodom on the day of judgment than for you."

### Rest for the Weary

**25At that time Jesus said, "I praise you, Father, Lord of heaven and earth, because you have hidden these things from the wise and learned, and revealed them to little children. 26Yes, Father, for this was your good pleasure.**

Write-up of point 3 in NIH Pioneer Proposal

Seminary Work-of course (should I do a little exogesis on the previous passage)

Michael Ty

Missions work in Africa and Armenia

At “Frontiers of Science”...talked about  
Seminary

At end of each talk, God is listed first in my  
Acknowledgements

Fred as a blessing in our department

Nandini-Journey with Christ

Michael Ty



**Right or Wrong....Stem Cell Researchers Issues**