



## Bridge to Doctorate Meeting Minutes

February 6th, 2018

Facilitator: Cristian Aviles-Martin

Minute Taker: Roman Mays

Duration: 1:00 pm – 2:00 pm.

### Presentation

Through-Shell Communication in Polymer Nanocapsules for Controlled Catalysis

1. Formation of nanocapsules
  - Self assembly
  - Surfactant based
2. Morphology of Nanocapsules
  - *Ultra-thin* hollow capsules
  - Large Internal volume
3. Uses
  - Sensing (Via Raman scattering)
  - Delivery (via pores)
  - Catalysis
4. Through-Shell communication
  - Via Catalytic Control
  - Capsules allow for controlled reactions
  - Isolation allows for not overloading the catalyst
5. Chemical control and Information Transfer Control of Activity
6. Future Outlooks
  - Applying to flow chemistry
    - Microfluidic devices and reactive chemistry
    - Multifunctional system: Different products, depending on catalyst

### Questions/Notes

Q. What kind of reactions are you considering; what kind of product are you looking for?

A. Reactions are based on individual species; this is more of a proof-of-concept exploration

N. Number the slides, start with the problem *first* and dive into the chemistry *second*

Q. What have you done so far?

A. A compound has been made, and there is work to try to get enough for experimentation

Q. How does the capsule complete loading?

A. Active loading that attracts things into the capsule

Q. What is the encapsulation efficiency?



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A. Around 60-80% efficiency.

Q. Is the connection to the catalyst through the pore?

A. Yes

Q. Is it thermodynamically favorable?

A. I believe it is possible for it to be

Q. Why is this important?

A. Green chemistry wants to use renewable feed stocks, this allows for the use of chemicals from the same feed stock.

### **On the Fly Networking: The Elevator Pitch**

This talk addresses introductions, how to give an elevator pitch, and how to make your important parts stand out to important parties in a conversation.

1. Identify your goals
2. Explain what you do (Wide scope here!)  
Not what you *study*, but what you **DO**.
3. Communicate unique selling proposition

### **Announcements**

- Three-Minute-Thesis session on 2/8 (Friday)
- Please put conferences and professional development events attended in Google Docs
- No Meeting on February 20<sup>th</sup>; Randi will update regarding dates for subsequent meetings

Upcoming meeting: TBA

Facilitator: Kevin Rivera

Minute taker: TBA

### **Attendees:**

Kevin Rivera

Pierre Fils

Jessica Maita

Cristian Aviles Martin

Brandon Williams

Roman Mays

Godwin Dzidotor

Shelby Brewer

Steven J. Toro

Luis Antonio

Aida Ghiaei

Randi Mendes