

# Paula Hammond

Paula Hammond is a chemical engineer who has made numerous advances in the design of polymers and nanoparticles for purposes ranging from drug delivery systems to fuel cells. Hammond is the first woman and African American to be appointed as Head of the Department of Chemical Engineering at MIT. Leading the Hammond lab at MIT, she continues devoting her career to finding solutions to problems in the world.

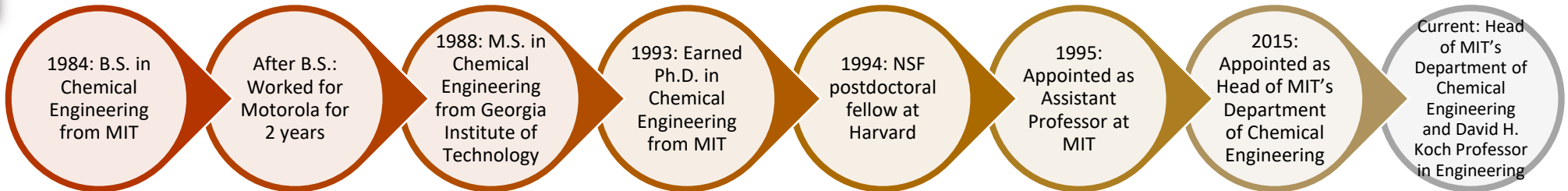


## Fun Fact

Hammond had originally planned to be a writer. However, at the age of 15 her favorite high school teacher, who was a chemistry teacher, sparked her interest in the subject by explaining how new materials could be formed through reactions.

“Excellence is gained from diversity...When we are working across this broader range of experiences and perspectives, we make inroads into difficult problems.”

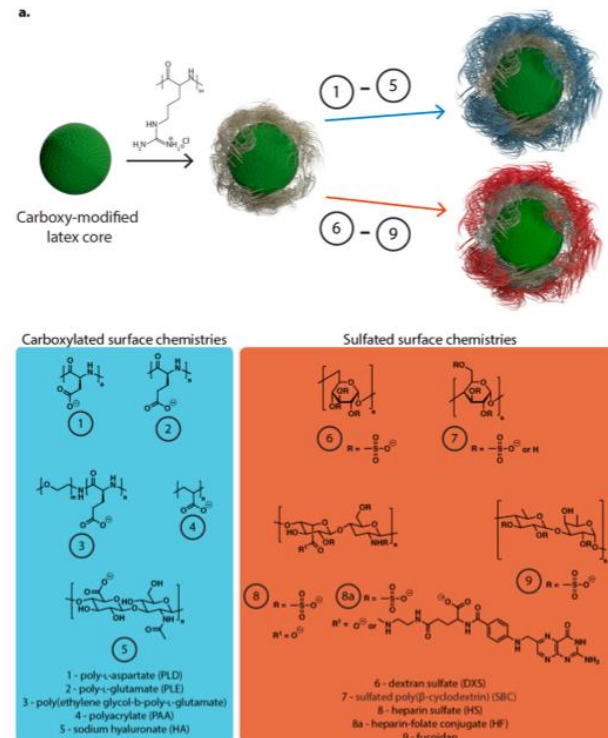
-Paula T. Hammond



## Research

Hammond and a team of scientists synthesized a series of nanoparticles (NPs) with different surface chemistries through Layer-by-Layer (LbL) assembly and tested their efficiency in targeting ovarian cancer cells. LbL-NPs were synthesized with surface chemistries of various polyanions including polypeptides, native polysaccharides, and synthetic polymers. High-grade serous ovarian cancer (HGSOC) exhibits metastatic progression that proves difficult for efficient drug delivery. In Hammond's study, it was found that LbL-NPs with carboxylated surface chemistries have a surprising affinity towards HGSOC cells.<sup>1</sup>

1. Correa, S.; Boehnke, N.; Barberio, A. E.; Elad Deiss-Yehiely, Shi, A.; Oberlton, B.; Smith, S. G.; Zervantonakis, I. K.; Dreaden, E. C.; Hammond, P. T. Tuning Nanoparticle Interactions with Ovarian Cancer through Layer-By-Layer Modification of Surface Chemistry. *ACS Nano* 2020, 14 (2), 2224–2237. <https://doi.org/10.1021/acsnano.9b09213>.



Reaction scheme for LbL assembly of NPs with various surface chemistries.<sup>1</sup>

## Special Edition BREAKING NEWS

### TIME TRAVEL INTERVIEW WITH PAULA HAMMOND



Following a recent backtrack in time to 2015 where chemical engineer Paula Hammond was interviewed, here is what she has to say about her career thus far.

**What is your biggest accomplishment in your career thus far?**

“I have made many advances in chemical engineering and have studied at prestigious universities, but being appointed as Head of the Chemical Engineering Department at MIT is most notable. I am the first woman and person of color to hold this position. I hope this is a step in the right direction for others like me getting the acknowledgment they deserve for the hard work they put into their work.”

**What about chemical engineering is intriguing to you?**

“Being able to use my hands to make new materials that solve real world problems makes me extremely excited. Chemical engineering is full of new possibilities, and that keeps me intrigued in the field.”

**Have you always wanted to be in your current field?**

“No, not always. When I was younger I thought I was going to grow up to be a writer. That changed when I was in high school and my favorite teacher introduced me to chemistry.”

