Department of Chemical and Materials Engineering presents

INTERVIEW WITH AN ENGINEER*

- Issue 1 -

Dr. Doris Vollmer

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It was my immense pleasure to interview Dr. Doris Vollmer, one of our eight 2018/ 2019 D. B. Robinson Distinguished Speakers. Dr. Vollmer delivered the Schlumberger Lecture on "How to design easy to clean surfaces". I am extremely appreciative to be able to have a one-on-one chat with such an open and inspiring scientist.

Amy Chow

*This interview is not an verbatim transcription.

How/why did you become a chemical engineer? What were your goals when you started?
I grew up in a small farming community; my parents expected me to take on more traditional family roles, but I told them I wanted to be a teacher. I ended up going to school to become a math and physics teacher, but found a love for science and decided to pursue academia. When I began my university studies, I was researching and studying for myself. In the last 10 (or so) years I found myself feeling a sense of responsibility to use my strengths and knowledge in science to benefit society; I was thinking, maybe I can do something for others.

Why is your research important?
Ideally, I would like to use my research for biofuelling and contribute to sustainable water and carbon dioxide solutions.
One current application of my work describes surfaces with improved properties for cleaning – this means using less chemicals and therefore cheaper to maintain surfaces, among others. In this sense, I also feel a responsibility to the students I come into contact with: I hope to make my students aware of problems the general public experiences and that they feel the same responsibility to contribute to society.

What discoveries have lead up to your current work?
One factor that leads to more developments in my research area is the use of laser scanning microscopy on wetting behavior, however, many discoveries are accidental or unplanned. Personally, I am not a long term planner and my work sometimes reflects this; accidental discovery can be key in my experiments. In the lab or in classrooms, we scientists play around, discover something new, and then ask the questions: why did this happen? What is the cause? This is how our work progresses.

What has been your most important scientific finding?
What is or isn't important is difficult to define, but I would say that the outside world would be better at determining what aspects of my work are MOST important.

What happens next in the process of discovery?
What I find most beneficial is understanding the limitations of the subjects in my work: materials, chemicals, processes, etc. How long lasting are they and when and WHY do they break down? What are the boundaries that will guide my research? This can be an, albeit, superficial way to address a vast number of problems, but it also means that a vast number of factors are considered during the research. What can be interesting are the consequences for the students; they must deal with frustrations, and the way these problems are dealt with will influence the student. The happier the student is, the more they can contribute and the more creative they can be.

I also find that excellent, motivated students working in a positive environment, conducive to excellent work, will provide the best results. If students are happy and feel safe to explore in the facility, then they will feel creativity and be able to use creativity in their work. You cannot create in the same way if you are busy with your own problems. I have been very fortunate to work with great students in a quality facility.