TIGERS TALK
Donis Flagello ’81, Ph.D. Transcript

Dr. David C. Munson, Jr.: Hello, RIT alumni and friends. President Dave Munson here again. I'm traveling the country as I continue my Alumni Tiger Tour. Today's stop is San Francisco, of course in California, in the Bay area. And I'm here with Dr. Donis Flagello, CEO and COO of Nikon Research Corporation of America. This is a subsidiary of Nikon Corporation and Dr. Flagello's division conducts lithography research and development work. He currently manages facilities in Belmont, California and in Tucson, Arizona. Donis is a prominent member of the microlithography community with over 30 years of experience in lithography modeling and problem solving. He is the author of over 50 academic papers, and is listed as an inventor on two dozen patents related to lithographic technologies. Dr. Flagello began his career at IBM where he was a member of the company's research staff. He's also served as an adjunct professor of optical science at the University of Arizona. And he's the recipient of the Frits Zernike Award for Microlithography for his outstanding accomplishments in the field. So Donis, congratulations on an illustrious career.

Dr. Donis Flagello: Thank you very much.

Munson: Donis, let's start out with, what for you, is a simple question. Can you please describe the process of lithography and maybe mention some of its applications?

Flagello: Well, lithography is basically a photographic process. You're imaging something. In this case it's a pattern. It's a circuit pattern. Circuits the way they're made is one pattern on top of each other, and they have intermediate processes that extend the patterns into various films. Now lithography, you do the pattern, instead of on a film or a digital image sensor, you do it in a material called photoresist. And photoresist, once it's imaged, makes a stencil. And that's basically lithography.

Munson: And so, what's the source of the radiation, or light, or ultraviolet, or whatever you use?

Flagello: So typically today we use lasers, excimer lasers, that's the state of the art. When you look at EUV, they use high pressure plasmas, but they still use lasers to activate the plasma.
Munson: Okay. And then you're shining this through some sort of template? Is that right, to create the pattern on the substrate?

Flagello: Yes. So typically the process is very much like an enlarger, an old photographic enlarger. Instead of enlarging with a negative, you are shrinking. And instead of a negative, you have a glass plate called a mask.

Munson: Okay. Shining this through a mask. Okay, so I think we've got the basics. And let me move on to some more general questions then. Professionally speaking, within this field, what do you consider to be your biggest success?

Flagello: Well, I think it's being able ... When I first left RIT, the first thing I did was work in manufacturing. And I think one of my successes was to actually migrate to research.

Munson: Okay.

Flagello: In research, because I had that manufacturing background, it helped me a lot in the research and in planning essentially research for manufacturing.

Munson: And so, who were you working with when you first got into research?

Flagello: In research, I worked with some of the top names in photoresist in lithography, Dr. Wilson. He's at the University of Texas. I worked with Jane Shaw. I worked with many people at IBM.

Munson: And at this point in your career, were you at IBM?

Flagello: Yes.

Munson: Okay. Another question is, what has been the biggest challenge, do you think, even within your entire career, or maybe within a recent position?

Flagello: I think the biggest challenge is my current position.
Munson: Okay.

Flagello: I'm CEO of a Japanese company, and the Japanese are very, very conservative. My guys are all researchers. They all are very active in the Bay Area. And they wanna do stuff right away.

Munson: And so is the Japanese company, or the folks that you answer to, are they hoping for quicker results? Or when you say conservative, what do you mean?

Flagello: Yeah, basically they're very slow when they do things. We can produce prototypes in six months to nine months. So, they're looking to us to be very active, very fast in our prototyping, but also networking in the Bay Area.

Munson: Okay. And if we transition to thinking about RIT, if you look back, what about your time at RIT do you think may have helped prepare you for your career?

Flagello: At RIT, I had an excellent education in the Photographic Science Department, which is now, has split into Imaging Science and Microelectronics. It was the rigor of the curriculum, the networking with the students, and also some of the internships that we had.

Munson: Yeah. Well, great. Would you have any advice for our current students?

Flagello: Prepare yourself for a lifetime of learning.

Munson: Okay. How did that translate for you? What sorts of things did you need to learn after you left RIT?

Flagello: Lots of stuff. I'm still learning now. For example, I'm no longer just doing lithography, we're doing biomedical technology. We're doing AI. I've taught myself NeuroNets. I've taught myself a little bit more biology.

Munson: Okay. So this is pretty far afield from what you actually studied at school?

Flagello: Exactly.
Munson: Yeah. And then, what advice might you have for your fellow alumni and how they might be connected or stay connected with RIT?

Flagello: Well, stay connected through networking, be in touch. Definitely try to stay active, volunteer in professional societies. This definitely helps with career, but it keeps you connected in many, many ways.

Munson: Well, great. Well, thank you Donis for your time today. And I hope we'll be able to see you back on campus sometime soon. Thanks to our listeners for tuning in. And as always, go Tigers.

Flagello: Thank you.