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Interviewer: Well Dr. Dittmar and Dr. Kelly, thank you both very much for joining me as a young person who was a bit of a space nerd growing up. I'm really excited to talk to both of you and to get your perspectives on deep space exploration and the future [00:00:30] of human exploration and where we're going from here. So to start us off, and I'm going to turn first to you, Dr. Dittmar, and then I'll turn to Dr. Kelly, but can you share with us your background, how you got started and what drew you to aerospace?

Dr. Dittmar:

Dr. Kelly:

Like Dr. Dittmar said, probably similar story. I was fortunate enough to actually grow up at Kennedy Space Center. So saw all the Apollo launches and the schools were filled with everything space. So I say often that I have space in my blood because I really truly experienced it firsthand by seeing it at JSC, it's where the astronauts train. [00:04:00] But when you see that launch and you have all the science and



that is such a diverse [00:10:30] set of things that we have the opportunity to work on. And I think what I enjoy most about my position and what I do here is the team that I get to work with and the partnership that we have with NASA is really very, very special.

It truly is a deep partnership. And then the incredible variety that I get to be part of every single day. I don't like doing the same thing every day and no two days are the same. And then when I also step back and think about what we get [00:11:00] to do that having long term impact for space exploration, but also life here on earth. And I'll also say if I take a step back and look at what Dr Dittmore does, the impact she's having for all of us in industry, the voice she is, and really bridging the entrepreneurs, the medium size, and then the larger companies, it truly is spectacular to have someone like her that is the voice in a lot of different places for the industry in the impact that we have.

Dr. Dittmar: Thank you so much. I appreciate [00:11:30] that.

Interviewer: So, Dr. Dittmar, now that we've kind of taken a little look at the background and in your current roles, just kind of start our discussion kind of looking forward. I guess the question is why go to deep space? And I know that's kind of a big question, but can you give us some thoughts on why it's necessary for us to keep pushing forward and why go to deep space besides just the coolness factor [00:12:00] of course, of exploration, but why go?

Dr. Dittmar: So a few years ago, I sat on a committee of the national academies of sciences, engineering and medicine that was constituted to study human space flight. And so it was called the human space flight committee. And we published a report in 2014 called pathways to exploration, which was really an assessment of NASA's plans for returning to deep space. One of the things that we were challenged to [00:12:30] do as a committee was to look at the value propositions for human space exploration. And as we dove into it, the problem which you've already sort of alluded to here is not that there were too few of these reasons, but too many of them, and it's like peeling an onion back, and there are interrelated. And there isn't a lot of hard data for any one of them, but when you take them as a whole, then you start to see sort of their richness of the endeavor itself.

So just [00:13:00] a few of them, one of them is that going to deep space just demonstrates that we can do hard things. And for the United States, it demonstrates that we haven't lost our appetite to do hard things, we are willing to engage in what is one of the most exacting engineering efforts known to human beings. I mean, space will kill you five ways and more than that. And so the engineering margins are very, very, very fine and thin. And the work that needs to be [00:13:30] done is sort of an inordinate precision. And so just being able to approach these things and do hard work and signal to the rest of the world, that we're willing to invest our time, our money, our lives in the case of those folks that actually venture out and that also work with a lot of pretty dangerous processes to get this done.

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I mean, that's a really important signal. It signals American leadership and our

Interviewer: Yeah. And if those guys can get to the moon on something like that, then that'll be hubris, but there's no telling what we might be able to achieve in space.

Dr. Dittmar: Right. Well, and the other thing I want to mention too, is the search for [00:17:30] life and we spend a lot of time on this, but we are the point between grand observatories and telescopes that are being launched or are already out there, or they were planning to launch as well as human capability to start going to other planets, return to the moon, and they go beyond that to Mars. We really are at the point where in our lifetimes or our children's lifetimes, we may be able to definitively answer the question of whether or not life arose elsewhere, certainly in our solar system and possibly beyond our solar system, when it comes to some of the really remote [00:18:00] imaging that we can do.

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Dr. Dittmar: Well, we've started our own podcast. So, happy to participate on yours and I'm





And my mother was a nurse graduated near the top of her class from Duke University at a time where young women for the South were just supposed to go to school to find husbands, served at the red cross also during world war II. And she too had this sort of service orientation, but she really encouraged all of my interests in science and math. I can remember doing fractions on the fogged in glass, in our living room, right? And [00:28:00] she would just sit there and encourage me and I remember both of them taught me things in different ways and those had sort of a great impact on me.

Interviewer: And Dr. Kelly, the same question for you, who inspired you when you were a student or young professional?

Dr. Kelly: I'll have to say my high school calculus teacher, neither of my parents finished college. And when it came to advice on what to major in, asking either of my parents was not really super [00:28:30] useful, my mother wanted me to go to college and certainly I got tremendous encouragement from her to do that, to have a good life and be able to care for myself on a lot of levels. But as far as what to major in, that wasn't the place to go. So I went to Mr. [Mims 00:28:47] one day after class and asked him. And his advice was this, "you love math, and you're good at science. Do yourself a favor and become an engineer. You'll have a lot of options in life." And such a short discussion, [00:29:00] but truly impacted the choices that I've had the opportunity to have in life.

Interviewer: I believe you went on to become a roboticist. And then now here you are at the Johnson Space Center.

remembered for, I'm not one to blow my [00:31:00] own horn a lot, but if I have served and I hope continue to serve as a role model for women, but really for others, I mean, for whomever, but certainly for women, both in the technical fields and in the social sciences, then I would be at peace. If I was remembered for those things, I would say that is a professional life well lived.

Interviewer: Well said. And Dr. Kelly, the same question for you, an accomplishment [00:31:30] from your career, you like to be remembered for?

Dr. Kelly: Very similarly, not an accomplishment per se. And I'll say it's aspirational. I hope to be remembered from a leadership perspective of setting the tone and be part of creating a culture that is high performing and that creates really the inspiration. Everybody is driven internally, but creates that environment of doing their best and supporting each other, and yet driving to excellence. And [00:32:00] certainly getting to do this with NASA is an environment to do that very well. And then the mentorship, be the Mr. Mims for somebody else. And whether it's through the outreach or any other capacity of mentoring, we never know necessarily the impact we make on others. And so hopefully that will be something that I get to be part of.

Interviewer: Excellent. Well said. So Dr. Dittmar [00:32:30] and Dr. Kelly, I want to thank you both very much for your time today and your insights and for sharing very fascinating time in the life of the American space exploration industry. And you both have been instrumental in the future we have ahead of us. And in large part, thanks to professionals such as yourselves. So thank you both. I know you're very busy, but for sitting down with us and your insights, and hopefully [00:33:00] there are people in our audience who share this with their kids and

Dr. Kelly