

*Oklahoma Innovations* Radio Show

Air Date: August 2, 2009

Guests: **Jessica Vinson, Michelle McFarland, Sherry Roberts**

[ Music ]

>> From the OCAST Radio Network, this is *Oklahoma Innovations*, a weekly science and technology radio magazine brought to you as a service of OCAST, the Oklahoma Center for the Advancement of Science and Technology. OCAST is the state's only agency whose sole focus is technology, its development, transfer, and commercialization. OCAST mission is to identify and fund promising research in technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of the state's most gifted and talented scientists, inventors, entrepreneurs, manufacturers, and business leaders who all have one common goal, developing technology-based economic growth for all Oklahomans. Now here are your hosts, Gary Owen and Steve Paris.

>> Well we are coming to you from Oklahoma Innovation's host sponsor OCAST, because we have some interesting people at OCAST that we couldn't get in the studio because they're all busy people.

>> That's the excellent point Gary. These are very busy people. We're going to be talking here in just a little bit with Jessica Vinson, Michelle McFarland, and Sherry Roberts who are key members of our staff. We have a very small staff at OCAST. I mean we have like 24 people who run several programs. We're going to talk about that in just a little bit, but these three individuals are a very important part of the process that we go through every year in trying to make certain that Oklahomans have a chance to apply for the money that is made available to OCAST from the legislature. And of course our overall, overarching concept is that we fund R and D - Research and Development - in various areas. And our purpose of course in doing so is technology based economic development. You hear us talking about that all the time. And you're going to be hearing more from these three ladies at OCAST here in just a little bit, and you're going to find out just who they are. Let me just set... people need to be listening to this, are people who run businesses and have a need to fund research so that they can make their business more competitive for the future, individuals who actually make a living doing research. I'm talking about people like university professors, and people in the private sector. These are opportunities that you need to know about so that you know how to apply for OCAST funding, and you're going to hear a lot about that here in just a little bit. So that being the overarching purpose of our show today, I think it's time to carry on. How about you?

>> You're going to learn some things about OCAST that you didn't know before, so you definitely want to stick around. What's going on with the calendar of events going on? I know you've got some things you want to share with us about OCAST this week.

>> Well of course you're going to be hearing more about that as we interview these three individuals. At OCAST right now, it's summertime and that's when we're getting ready, and you're going to hear about that, getting ready for our solicitation scheme, ready to put some more funding out there for research. Just kind of an overview, we have over the past 22 years have funded more than, well more than a thousand projects, individual projects and have several programs that really don't involve projects sometimes. And the thing that I'd like to point out is

when I look back, when I got involved with this nearly two decades ago, you just didn't have much of an infrastructure in Oklahoma that involves science and technology. That's not true today, it's there. We have business after business after business that is based upon sound research that has happened over the last couple of decades. We funded a lot of it, we haven't funded every bit of it. Some of it's funded by private sector sources, some of it's funded through university, some of it's funded through the different resources. But the point I want to make is that no longer do we simply rely on energy or agriculture. They're still two mainstays in the Oklahoma economy, and very important to us. We still fund a lot of research for energy and agriculture, but since that time they've been joined by manufacturing and technology based companies that are doing wonderful things, employing lots of Oklahomans. That's the difference between what we are experiencing now and when this first started in 1986.

>> You know, I think about some of the new sciences too; biosciences, nanotechnology coming up the ranks, and we're going to be learning a lot more about that as time goes on.

>> Exactly.

>> In the news this past week; Chinese researchers have managed to create powerful stem cells from mouse skin, and used these to generate fertile live mouse pups. They induced pleura potent skin cells, or as they call them, IPS cells - cells that have been reprogrammed to look and act like embryonic stem cells. Embryonic stem cells taken from days old embryos have the power to morph into any cell type, and in mice can be implanted into a mother's womb to create living mouse pups. Their experiment published in Nature means that it is theoretically possible to clone someone using ordinary connective tissue cells found on another person's skin. But the experts were quick of course to distance themselves from such controversy. A Canadian billionaire who you probably don't remember by name, but you would know his shows - Guy Laliberte. Do you know who that guy is?

>> You know, it sounds familiar Gary.

>> Well he's the founder of the Montreal based Cirque du Soleil.

>> OK.

>> Well anyway, this Canadian billionaire, who turned a passion for acrobatics and circus acts into a global entertainment empire, will look for inspiration in space in September when he becomes the latest space tourist. As a matter of fact, he will be the seventh fare paying tourist through the International Space Station. The cost of the 12 day trip is only about 35 million dollars.

>> Is that all?

>> That's all, I mean, you and I could save for that for next year. Maybe, maybe. A team of archeologists using a sonar technology to scan the sea bed have discovered a graveyard of 5, count them - five pristine ancient Roman shipwrecks off the small Italian island of Ventotene. The trading vessels dating from the 1st century BC to the fifth century AD, lie more than 100 meters underwater and are amongst the deepest wrecks discovered in the Mediterranean in recent years. And I thought that was pretty cool.

>> Yeah I did too. I saw pictures of that on the web.

>> In a disturbing new projection, health officials say up to 40 percent of Americans could get swine flu this year and next, and several hundred thousand could die without a successful

vaccine campaign, and of course other measures. The estimates by the Centers for Disease Control and Prevention are roughly twice the number of those who catch flu in a normal season, and add greater weight to the hurried efforts to get a new vaccine ready for the fall flu season. Swine flu has already hit the United States harder than any other nation, but it has struck something of a glancing blow that's more surprising than devastating. The virus has killed about 300 Americans and experts believe it has sickened more than one million, comparable to a flu, seasonal flu, with the weird ability to keep spreading in the summer. Isn't that something? So I guess we'll be finding out more about those flu vaccines in the fall. Steve has our Innovations in History, and some interesting stuff for the month of July.

>> Yes I do Gary. You know on July 21, 1959 the N. S. Savannah, that stands for Nuclear Ship Savannah. The first nuclear powered merchant ship was christened by first lady Mamie Eisenhower at Camden New Jersey. On July 21, 1961 Captain Virgil "Gus" Grissom became the second American to rocket into a... let me say that one more time, a suborbital pattern around the Earth, flying aboard the Liberty Bell 7. I could say that word, suborbital. On the same date in 1969 Apollo 11 astronauts Neil Armstrong and Edwin "Buzz" Aldrin blasted off from the moon aboard the ascent stage of the lunar module for docking with the command module. In other words they left the moon to come back home. July 22, 1933 American aviator Wiley Post completed the first solo flight around the world, and he returned to New York's Floyd Bennett Field after traveling for seven days, 18 and three quarter hours. On July 25, 1909 French aviator Louis Bleriot became the first person to fly and airplane across the English Channel, traveling from Calais to Dover in 37 minutes. On July 25, 1946 the United States detonated an atomic bomb near the Bikini Atoll in the Pacific. It was the first underwater test of such a device. In a related story on July 25, 1963 the United States, the Soviet Union, and Britain initialed a treaty in Moscow prohibiting the testing of nuclear weapons in the atmosphere, in space, or underwater. And on July 25, 1984 Soviet cosmonaut Svetlana Savitskaya became the first woman to walk in space, and she carried out more than three hours of experiments outside the orbiting space station Soyuz. And our last one Gary, July 26, 1971 Apollo 15 was launched from Cape Kennedy on America's 4th manned mission to the moon. And those are just a few of the innovations in history for the month of July.

>> I'm very impressed by the way you say that, the Soviet names. You done good.

>> Would you believe, I tell ya, I knew her personally?

>> You did?

>> I really didn't. I just wanted to see if you'd believe it.

>> I'm such a sucker.

>> Yes you are. Reel him in folks, reel him in.

>> OK, well now we have three lovely ladies and as I said, we are on location at the OCAST facility this week, and we're delighted and I know all of these ladies, they are just wonderful people if you've met them in person, and they do some wonderful work at OCAST. Steve?

>> You're exactly right, and that's one of the things that we're very proud of at OCAST, is the team that we've... that has been put together over the years. We have people who have a lot of expertise in so many different fields. Our first guest is Jessica Vinson. She's been on the program not too long ago, back in March I believe, and Jessica is a programs officer too in the program

division at OCAST. She is going to be talking about a couple of things - plant sciences and nano technology. Welcome Jessica, how are you?

>> Thank you, good.

>> You just had a little one not too long ago?

>> That's correct.

>> Yeah, little boy right?

>> Little boy.

>> He's how old now?

>> Three and a half months.

>> OK. So your life has changed substantially hasn't it?

>> Tremendously.

>> Well... OK. Well plant sciences... what is plant sciences? I know people here have talked about that and obviously it deals with plants, and we all know about plants but we don't know exactly what this program is about. Can you kind of explain it for us?

>> Sure, there are two components to the plant science. There are the basic and the applied, and it's a variety of fields. We have crop production, seeds, genetics mix, whatever people in the plant arena apply for this; and this will be coming out in mid August. One thing about this year that's different from the past years is that we've only had 270,000 dollars for the past few years, and this year we have 540,000 dollars.

>> Hey, that's a good sign.

>> So we can fund quite a bit more projects than we have in the past.

>> Yeah, let's talk about plant sciences just a little bit and kind of get an idea of... obviously it has an energy impact, it has an impact on biotechnology, and many other things. Give us some of the things that you... that you foresee or have been funded in the past.

>> Well two of the success stories both come from OSU, and they are actually from the first year. The program started in FY07 so it's a relatively new program. The first one is the only apply that was funded in FY07, and 489,000 dollars came from federal money. So that's a pretty significant impact for a program that's fairly new. And the other one is a basic program, and it was funded... received 347,000 dollars in federal funds, which is also a good impact for a new program and a basic project.

>> Yeah, very good. Now you've got some... I think you do have, some workshop dates coming up. Is that right?

>> That's correct.

>> And that's very important. Everybody get your pencil and paper out because if you're interested in plant sciences and you want to know how to apply for these funds, you need to know about this information. Go ahead Jessica.

>> We've actually added two locations this year. Typically we just do them in Stillwater and Ardmore, but we will be in Tulsa on September 9 and Oklahoma City on September 15, and then

Stillwater will be September 8 and Ardmore September 10. And they are posted on the website and people can sign up on our website.

>> Very good. Let's tell you what, we've got to take a little break here but some interesting stuff here for you that are listening about OCAST. You're going to find out more about some of the wonderful things that they do, so stay with us. More to come on your science radio magazine, *Oklahoma Innovations*. Don't you go away, we'll be right back.

[ Music ]

>> As you drive across Oklahoma, you can see thousands of gas wells sprinkled throughout the countryside. Many of these wells don't produce enough natural gas to justify pipelines. But without this access thousands of well sites are abandoned. With the support of the Oklahoma Center for the Advancement of Science and Technology, one company is creating a portable device transported on a flatbed truck to process natural gas at well sites. This technology optimizes the amount of gas that can be captured, and releases no byproducts into the atmosphere. This idea provides new opportunities for small oil and gas producers while bringing us one step closer to energy independence. Supporting innovation, that's what OCAST is all about. OCAST is looking for small business owners serious about investigating new products, services, and processes. For more information call OCAST toll free at 866-265-2215 or visit their website at [OCAST.ok.gov](http://OCAST.ok.gov). Investing in research and development, it pumps new life into Oklahoma's economy.

>> You're listening to Oklahoma's science radio magazine, *Oklahoma Innovations*, on the OCAST radio network.

[ Music ]

>> This week we have a rare opportunity to come to you from the Oklahoma Center for the Advancement of Science and Technology. OCAST, the organization that brings you this program each week. And we're talking with three of OCAST's employees who are involved in the program division, and we're talking right now with Jessica Vinson and she is talking about some of the plant science projects that have been funded. Steve?

>> Yes, and before we went to the break Gary, Jessica mentioned the website and I'm going to put that out right now so everybody can write it down. And if you want to know more about the workshops that she had just talked about, and what Michelle and Sherry will be talking about after a while, I want you to write this down. It's [www.oicast.ok.gov](http://www.oicast.ok.gov). I'll say it one more time - [www.oicast.ok.gov](http://www.oicast.ok.gov). Quick rundown of plant sciences, it improves the competitiveness of Oklahoma plant researchers in securing federal grants and contracts; very important aspect to what we do, bringing more federal and private sector dollars to Oklahoma. Help researchers gain the expertise and gather research data to support funding opportunities for larger research projects. It encourages collaborative efforts and supports R and D necessary to move plant science research to commercialization. Got a couple of examples that you gave us Jessica, and you say... jump right in here anytime you want to, but Dr. Liuling Yan from Oklahoma State University won nearly half a million dollars in federal money on her project. The proposed project will map and identify the winter wheat gene responsible for vernalization duration. Now what does that mean? Well that's... it involves winter wheat and figuring out exactly when wheat is going to mature. You know, that's one of the few plants we grow in Oklahoma that grows over the winter. It's planted in September, harvested in May, grows all winter long, goes into a state

of dormancy; but if we can get it to get some of the wheat to different varieties, to extend their... or hurry up their growing process, then it has some applications for livestock producers. In case you don't know, wheat and livestock production go hand in hand in Oklahoma. That doesn't happen in every state in the union. It happens in places like Oklahoma where we have, we're a little further south, Oklahoma and Texas have a longer, or actually a shorter winter growing season. And so that allows us to put cattle on wheat in the spring months, and it makes a... literally tens of millions of dollars of difference for livestock producers. So if we can get with Dr. Yan's research, get this to a point where we can extend that growing period, then it's going to help all livestock producers in Oklahoma. Dr. Ramanjulu Sunkar from Oklahoma State University won 347,000 dollars in federal money, also on a wheat project. This individual will be identifying micro RNA and subsequently their targets in wheat, making it possible to unravel the complex micro RNA regulatory networks that control development, nutrition, and stress responses in wheat. And we all know what that means, that means that more of the wheat's going to be possibly available for use in biotechnology. It's going to be more productive, so it's going to make money for wheat farmers and have all kinds of benefits. And so those are just some of the examples of what can happen in plant science. Right Jessica?

>> Yes.

>> Ok. Let's talk about nano. It's your show now.

>> Well we will be releasing the solicitation in the first part of January, and we release it earlier compared to when the attend deadline is so we can help companies and universities match up, because it is required that a university work with a business in order to be eligible. And I will be in Tulsa on February 9 to do a workshop, and I will be in Stillwater on February 10, and February 11 I'll be in Oklahoma City. So if anybody is interested, come on by and I'll do a workshop.

>> That is 2010 people. There you go. And make certain that they go to the website, and we gave that earlier - [www.oicast.ok.gov](http://www.oicast.ok.gov) - to find out more details. And you can also sign up online, can you not?

>> That is correct.

>> OK, very good. You have any examples of nanotechnology application award winners? I've got a few around here. We'll just pick out one or 2, how's that?

>> OK.

>> Let's talk about Professor Parameswar Hari of the University of Tulsa. He was, by the way, the first researcher to make application for this, for this or any other program, in the city of Tulsa. So I want just to point that out. From now on, we started this just a couple of months ago, from now on anyone who wants to apply for any OCAST program can go to the OCAST offices. It's available on the website, and you can deliver your research project here. And as time goes on we're going to even get better at that because we're going to allow people to make application online or with CD's. And we're not going to talk about that today, but that's coming right? That's going to be something that happens in the not too distant future. But Dr. Hari at the University of Tulsa discovered that zinc oxide nanorods, now nanotechnology is the new technology we're dealing with today. It's everywhere you go, so many different products are made out of nano materials. These oxide nano rods can be selectively grown and produce open or closed nano structures by controlling deposition conditions in a wet chemical process. Access

Optics - it's a company that will work with the University of Tulsa on this project, and the primary use of these detectors is in the form of sensors and medical monitors for anesthesia application. See, who would have every thought that nanotechnology would be involved in anesthetics. It's the 90,000 dollars award for two years, and there's a bunch of other examples. We got Amethyst Research Incorporated of Ardmore, they're doing research projects with the Offices of Navy Research. I bring these examples up so that our listeners can understand we're involved in worldwide research projects that bring wealth, that bring opportunity to Oklahoma. Gary?

>> Well I tell you what, every time I get with you I learn all these wonderful things going on with the state, as our listeners do, and it's like right here in our own backyard.

>> Yeah. Right here in our own back... now don't give me any credit for these, I just read the material. What I'm telling you though, we have researchers in this state that these three ladies work with...

>> Absolutely.

>> And it's something we should be very proud of from a standpoint of being an Oklahoma citizen, because of the work that has to do with technology based, economic development, and every citizen in the state of Oklahoma benefits from it.

>> And OCAST is helping us get that done with your state tax dollars. We appreciate OCAST keeping us informed through this program about what's going on. We've got to take a little break. When we come back we're going to be talking with Shelly? Is that right?

>> No we're going to be talking with Michelle McFarland, then Sherry Roberts.

>> OK, so we've got a couple of more young ladies there... lovely ladies here we're going to talk to in just a minute, when we return on *Oklahoma Innovations*.

>> This is *Oklahoma Innovations* on the OCAST radio network.

[ Music ]

>> The stress of finding a job after college is compounded for recent graduates entering a tough job market. But thanks to the Oklahoma Center for the Advancement of Science and Technology, more students connect with the state's most advanced technology companies, while earning income and valuable on the job training. Through the OCAST R and D intern partnerships program, students gain experience in the industry, work with mentors, and operate specialized instruments. Intern training leads to starting salaries 12 percent higher than Oklahoma's average per capita income. OCAST is investing in Oklahoma's best and brightest. Creating jobs, investing in our future, that's what OCAST is all about. OCAST is seeking intern partnership opportunities that will allow Oklahoma's students to gain hands on experience in science and technology careers. For more information call OCAST toll free at 866-265-2215 or visit their website at [OCAST.ok.gov](http://OCAST.ok.gov). The future of Oklahoma looks bright.

>> The waving wheat can sure smell sweet when the wind comes right behind the rain. But what happens when the rain doesn't come? Wheat growers across Oklahoma know too well the impact that a poor growing season can have on crops and markets. Drought, disease, and poor soil are just a few of the things that keep farmers up at night. What if those issues were a thing of the past? In labs funded by the Oklahoma Center for the Advancement of Science and Technology, researchers are finding new ways for producing better plants that can withstand unfavorable

conditions. Creating opportunity and improving the economy, that's what OCAST is all about. OCAST is looking for small business owners serious about investigating new products, services, and processes. For more information call OCAST toll free at 866-265-2215 or visit their website at [OCAST.ok.gov](http://OCAST.ok.gov). In a state deeply rooted in agriculture, plant science helps Oklahoma farmers grow their business.

>> Research and development, technology transfer, and commercialization; creating high paying jobs in Oklahoma. It's what OCAST is all about. This is *Oklahoma Innovations* on the OCAST radio network.

[ Music ]

>> By now you're learning a little bit more about what OCAST does. And OCAST, the Oklahoma Center for the Advancement of Science and Technology, talking with a few of the ladies involved here in the program division, and also here momentarily we're going to be talking with Sherry Roberts who's the client services manager. We'll find out what her responsibilities is, but now we're going to talk about OARS, and I guess Steve also about some intern programs.

>> Exactly. Michelle McFarland is the programs officer... she's been with us for some years now, started fairly early on in the OCAST 22 year history. She is in charge of working in... well she does a lot of things. One of those is what we talked about before. She connects workshops, she helps work the programs that involve the... the Applied Research Program, the R and D intern partnerships program, and health research. I'm going to ask Michelle, if you will, to kind of give us just an explanation of... a general explanation of applied research, and then tie that into the intern partnership program; because they're both connected. Right?

>> That is correct Steve. Well what I can say is when we talk about the OARS program, the acronym basically stands for the Oklahoma Applied Research Support Program. Essentially what that program is about is we are looking for research and development that is going to lead to a product process or service. Under the OARS program we also have the intern partnership program, which is essentially for undergraduate students who are looking to do an internship in a business atmosphere under the... basically the major that they are pursuing within the college that they are enrolled in. So part of the OARS program is, under the OARS program there are actually two different types of programs for the applied. one would be the proof of concept, and the other one would be the accelerated, if you're looking at actually coming in for applied research money. When I talk about proof of concept, I'm talking about early stage research and development. When I'm talking about the accelerated, I'm talking about latter stage research and development to where a researcher is really looking at a product, process, or service that's almost ready to go to commercialization. Also the difference between the two programs is, with the proof of concept for example, it's a two year program. And all the programs that we've talked about here today, you have to come in with a budget... with a minimum of 10,000 dollars. So for the proof of concept you're looking at a 45,000 dollar budget for up to two years, which a matching component of non state appropriated money. So essentially an individual that's out there doing research could come in with the matching component and have a 90,000 dollar project for proof of concept. Now if they're in the latter stage part of their research, they may want to look at the accelerated. In essentially the accelerated you're looking at up to 300,000 dollars for a research project. And with that 300,000 of course you would do non state

appropriated match. And so you're potentially looking at a project that's worth 600,000 dollars that can be spread out over three years.

>> And that's an excellent explanation, but it is by no means a complete explanation because we don't have enough time on the show to do all that; but they can find out, either listeners can find out everything they want to know about these and other programs at OCAST by looking on our website at [www.ocast.state.ok.us](http://www.ocast.state.ok.us). Now you've got some workshops, you've been doing a lot of workshops recently. I think many of them are already completed, but you have some more scheduled do you not?

>> I do indeed. I have four more scheduled, and basically we kind of split the workshops up. We have two that are half a day workshops, and then two that are all day workshops. Now the half a day workshops are going to be from 1:30 to 4:30. One is August 13 in Norman, and then the other one is August 18 in Stillwater. And again that's the half day workshops, it's just an overview of the program. The ones that are going to be for an all day is going to be August 11, and that's in Tulsa. The other one will be August 20 in Oklahoma City. And essentially the difference between the two workshops is, is I do the half day workshop in the morning and then researchers have an opportunity to sit down with me one on one, and go over their projects that they're going to submit to us for peer review, and to help them to get a better idea of how they can improve their proposal.

>> Very good. So you need to write those down, and if you need more information about those times and how to sign up online for these workshops, you can go to our website that we mentioned earlier - [www.ocast.state.ok.us](http://www.ocast.state.ok.us). And you can get more information and sign up, and so... Let's give some example... let's jump over to R and D intern partnerships, because that's kind of the key of what we're talking about today. Not to take anything away from the OARS program which is a part of it, but we have your workshops that are coming up, are mostly for which one?

>> The workshops that we're doing is for the OARS. The intern has already passed.

>> OK, well let's talk about the intern. Give us some examples of at least an intern project that you think has worked well.

>> Well I can kind of give you an overview of projects. There is a individual, Dr. Ann Nalley, that was one of the very first individuals that submitted a project for funding through the intern program. And that was back in 1998, and so the program's been around... yeah, it's been around for a long, long time. And since then she has had a multitude of interns, has had the opportunity to work in many different research and development companies down in Lawton Oklahoma. What I think is so great about this is, this is an undergraduate program. However almost, I'm going to say at least 90 to 95 percent of her students that was basically going to just get a graduate degree, or excuse me an undergraduate degree, went onto not only get their degree but they also did their graduate degree, a PhD, or an MD. But she can be very proud of her students because of our program, and she gives us total credit for these students having that opportunity with the intern program and the funding that she received, to be able to get these students to go further on in their career.

>> Let's jump to the other side of the state real quick. I have an example of a good intern partnership program in Tulsa. It involves Dr. Surendra Singh of the University of Tulsa, who will mentor interns, who will help design and develop electric submersible pump components,

including electric down hole motors, seal sections, gas separators, and gauges for monitoring down hole conditions. The 60,000 dollar two year project will be... it's actually underway as we speak, is being conducted in collaboration with a company called Center Lift, which a division of Baker Hughes located in Claremore. And that's in the area of energy and conversion. And you know, just to give you an example that these kinds of projects... intern projects also are involved in computer systems, the software application, the manufacturing process, electronic instrumentation, sensors and control systems, even in ranching and aircraft manufacturing. Those are just some of the more recent types of projects that have been funded through OCAST. Those, by the way I'll just give you... I'll spill the beans, those examples came from one of last fall's programs... where they were approved for funding for all those projects I just mentioned. If you want to be a part of that, make sure you check on our website as I mentioned earlier, and know when to make an application or when to attend the workshops. We've got a couple of minutes in this segment. Michelle, I want to give one more example and the reason I want to do that, and Michelle's looking at me like - well are you going to give it or am I? Well I'm prepared to, OK? We'll let you jump in anytime if you want to. The first time, first example that you gave was Ann Nalley, Dr. Ann Nalley in Lawton Oklahoma in the southwestern part of the state. I gave an example of Dr. Surendra Singh located at the University of Tulsa, in Tulsa, in northeast Oklahoma. Well we left the center part of the state out. Let's pull one in from Oklahoma City, and I'm talking of course of Dr. Charlotte Mulvihill, is professor of biotechnology located at Oklahoma City Community College in southeastern part of Oklahoma City. Her programs involved 41 interns of 4 to 6 students each per semester, and they were involved in a lot of different disciplines but their work involved... community college students were often... have to juggle their school work and family, and try to get their education. These programs help them do some biotechnology work, to work with some companies that are potential employers down the line. And so we've got Lawton and we've got Tulsa, we've got Oklahoma City covered. In some future show we'll cover northwest and southeast Oklahoma. How's that?

>> I think that would be great.

>> OK.

>> And I would like to jump in and just say one thing about that is, when we think of interns and internships, many of these interns actually were non traditional; meaning that they were individuals that went out and started a career and then wanted to go back and do something different. So we are seeing a different age range as far as the interns that we are getting for this program.

>> We may not have intended that when we first started out, but it's a good thing to have happen.

>> Yes.

>> And we're here ready for them to... to serve them as the time goes. Gary?

>> OK. Well as you are hearing, this is an opportunity for us to learn more about what goes on inside the OCAST group because they do some wonderful things from education, like the intern partnership program, and with all of the funding programs that are available we hope that you're finding out more about this wonderful organization, the Oklahoma Center for the Advancement of Science and Technology. We hope that you enjoy this program that we bring you each week,

because this is OCAST doing this for you. So we're going to take a little break, we'll come back more on *Oklahoma Innovations*.

[ Music ]

>> Now in its 13th year, this is *Oklahoma Innovations* on the OCAST radio network.

>> When people think about science and technology, they imagine the future. Although researchers are developing the technology and treatments of tomorrow, results can be seen today. And investment in OCAST yields immediate return to our state through increased salaries, higher productivity, and a diversified economy. Oklahoma is an emerging global leader in science, technology, research, and development; with a workforce that continues to improve, both in incomes and education levels. Oklahoma can achieve a dynamic economy with a culture of innovation and new opportunities that attract and retain bright creative people. Creating opportunities, improving the economy, and investing in our future, that's what OCAST is all about. For more information, call OCAST toll free at 866-265-2215, or visit our website at [OCAST.ok.gov](http://OCAST.ok.gov). An investment in OCAST is an investment in Oklahoma, for today and tomorrow.

[ Music ]

>> This program is about science and technology in Oklahoma, and when we talk about that we don't just mean the research. We talk about the funding, we talk about commercialization, we talk about education. There's a lot of links to this program, and we hope that each week you find something interesting and as we've been doing this what now... I guess we're in our 14th year?

>> 14th year Gary.

>> And who would have thought that wonderful feedback we get from our listeners about the interesting things that they discover going on in Oklahoma, in science and technology, and OCAST is a big part of that.

>> Thank you Gary. You know, before we leave Michelle, because she's almost finished with her presentation, but there's a couple of things I think she needs to address, would ask her to. We've got some deadlines coming up, statement of intents for OARS and the intern partnership program. We didn't talk about health, but give us some... very quickly tell us about what people need to be watching for right now.

>> Well under the program, part of the requirements are that the statement of intent in order to be able to submit an application, an individual will have to submit a statement of intent.

>> There's a purpose for that. It helps us understand how many applications to expect so that we can gear up for that process.

>> That's correct, because we do a peer review process and so it helps us to know what type of projects we're going to get in for this round of competition. Under the OARS program the statement of intent is going to be due August 26 by 5 p.m. Individuals can submit it through the fax and if they're thinking about doing more than one project, then they would need to submit more than one statement of intent; so one for each project that they're considering. For the statement of intent, under the intern partnership, that's coming up pretty quickly. That's going to be Wednesday August 5, and again that has to be in by 5 p.m. For the application deadline, under the OARS program, the application is going to be Wednesday September 9. And again that's going to be by 5 p.m. I do want to let the audience know for individuals that have submitted

before, we have changed the way that the program is working now. In other words, we have to submit one original and then also a copy of all the forms. But what's different this time is that they are now submitting one CD with their proposal on it. So it's great, we're trying to reduce copying. We used to ask for so many copies, and so we're trying to go more green.

>> Trying to go green...

>> Yes we are indeed. So that is going to be the change in both the OARS and the intern. And then the intern application deadline is August 19. So keep those two dates in mind, they are coming up very quickly here, and then just to talk real quickly - I also run the health research competition, and for individuals that may be looking at doing basic research, that solicitation will be coming out mid November. You can contact me, put your name of the mailing list, and we will make sure you're notified.

>> Very good. Thank you Michelle. Now we have Sherry Roberts who is the client services manager here at OCAST. She is... she has, this is the first time on the radio here on our program right?

>> No, no, I've been on.

>> She's been on in the past.

>> Is that right?

>> See how much I forget?

>> It's been a while.

>> It's been a while Sherry. But you're involved with the small SBRA the call it. I'm going to let you explain what that is, which includes SBIR and STTR.

>> We have a lot of acronyms don't we?

>> Yes we do. It's alphabet soup around here, but go ahead and explain your program.

>> The Small Business Research Assistance program is what you were talking about. Under that, there's an umbrella there, and underneath that we have the Small Business Innovation Research and the Small Business Technology Transfer program. Those are two programs that are set up to assist us, technology based businesses, in going after federal dollars. Actually the SBIR and the STTR are federal programs. There are 11 federal agencies that participate in that, and so we are trying to encourage more Oklahoma companies to apply for those federal dollars. We have...

>> If I understand it correctly, I think Congress has set up two and a half percent of their budgets, or is it three percent?

>> It's two and a half percent right now. We're looking at re-authorization, so that may go up.

>> OK, and what that means is... the two and a half percent of the budgets of those federal agencies has, by order of Congress, has to be set aside for small business innovation, research, and small business technology transfer. Right?

>> Right. That's exactly right.

>> And our goal at OCAST is get just as many of those dollars coming to Oklahoma as we possibly can, because we have some good research to do here, right?

>> We definitely do. And it works with all our other programs also.

>> Of course.

>> What we do is, as far as the SBIR program and STTR, at first... OK let me explain. When you're talking to a federal program you have three different phases. Phase 1 is developing... it's just writing your paper - this is what I think I can do, and that's it. Phase 2 is developing a prototype, and then phase 3 is commercialization. Under phase 1 they can get about 100,000 dollars. Phase 2 it's up to about 750, and then phase 3 commercialization, they have to go somewhere for that. They don't get that from the federal people. What we try to do is... advice our companies to go after that phase 1 first, because they have to get it first before they can go after the bigger dollars. We will offset the costs 50 percent of applying for an SBIR up to a maximum of 3,000, and 5,000 dollars for an STTR. So it's 50 percent of the cost of developing that proposal. Now this is a reimbursement. They have to have submitted that proposal, turned it in, and in fact when they submit their solicitation back to us and fill out the forms, then they have to show us documentation that they have submitted, and that the federal agencies received it.

>> And of course when you talk about small business, we're actually trying to serve those small businesses; many of which in Oklahoma may only have 4 or 5 people working for them. So it's really difficult to break loose a staff person to write that federal application, because you just don't have enough people to get it done. So this allows you to hire that expertise, pay someone to do it for you, and OCAST will foot the bill for a big part of that. OK, very good. We need to give some examples before we go any further because I know that there's a lot of them out there. One that always comes to mind... and it's a company located up in Guthrie - Zivko Aeronautics. They do it right, and they have done some tremendous work and brought a large volume of money into the state to conduct more research. Explain a little bit about Zivko.

>> They were on our show just recently.

>> Yes, we've had them on the program before.

>> They... it's out of Guthrie, and one of the things they do is they build planes that do, I believe they race don't they?

>> Yeah, that's right.

>> But their SBIR is involved with other aspects?

>> It is unmanned airplanes... is what it is. And that's in the... that they use overseas in the war efforts and things along that line. So they're one of the first ones that did this. So they were really kind of breaking ground on it.

>> Yeah, they... to go back to what you said about their aerobatic aircraft, they built the 540 and I've forgotten the other accolade to that. But it's used in a lot of your competition racing, used in a lot of your aerobatics, and in addition to that, as you indicated, they're dealing right now... they're working with several different federal agencies. One includes the U. S. Navy, and they're developing those unmanned aircraft that can do things without putting a pilot's life in jeopardy, and help the war fighters accomplish things we couldn't accomplish otherwise. There's some more examples that I like - Design Intelligence Incorporated. That's James Grimsley isn't it?

>> Right.

>> Yeah, tell us a little bit about James.

>> Well he's kind of doing the same kind of thing, but it's a little bit smaller. It's also the unmanned aerial vehicles, but they're very, very tiny. These are... they're used... they're used for the same kind of effort.

>> Did you say miniature?

>> Miniature. Extremely miniature. I mean, we're getting down to... it's not quite nanotechnology, no. But I know that he's been using some of the different things. He's been testing this solar, using solar energy on it. He's been testing several different ways of doing this, so that this little tiny plane would be re-energized - they don't have to put, you can't put gas in this little... he's doing some really leading, cutting edge.

>> And that's happening right here in Oklahoma. We're about to run out of time here. I just wanted to... are there any deadlines on your program that we need to talk about right now?

>> Our solicitations are open all the time.

>> All open all the time, so contact Sherry, get on her website, and Sherry can tell you how to do that. You can find her number, but I'll just give it real quickly. 405-319-8418. That's 319-8418. We're OCAST.ok.gov, and you can find out more about this wonderful program.

>> This has been great to... for the listeners out there who don't have a clear understanding of what OCAST is all about Steve. This has been great to have these ladies on to explain some of the things they're involved with. And by the way, if you don't get the address just type in O-C-A-S-T, OCAST, in your web browser and it will take you to a listening where you'll see the OCAST website, and just click on it - it'll take you right there. By the way, another thing of it that's really cool about their website is if you just click on what is it? The news link? You can hear archived *Oklahoma Innovations*.

>> Some several month's worth.

>> That's right. We gotta go. Thank you so much for joining us this week. We hope you've learned more about Oklahoma's Center for Advancement of Science and Technology. Steve, we'll see you next week.

>> See you Gary.

>> On *Oklahoma Innovations*. Have a good week.

[ Music ]

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