



Dream Spot for Startups and Relocation Now Open 331 Innovation Boulevard Offers Access to Resources, Top Talent, and Technology









**ALEO BME, INC.** NERVE REPAIR BREAKTHROUGH Page 5 GREENTOWERS USA FROM CONCEPT TO MARKET Page 10 DAYBRIDGE DELIGHTS INNOVATION PARK FAMILIES Page 12 **SIX REASONS** TO RELOCATE IN HAPPY VALLEY Page 15



Leasing Agent Tom MacDonald shows guests around the building

## **INNOVATION PARK HOLDS GRAND OPENING FOR** 331 INNOVATION BOULEVARD WELCOMING NEW TENANTS TO THE PARK'S

ENTREPRENEURIAL ECOSYSTEM

### **BY LEAH GRUBB**

In October 2015, Innovation Park at Penn State, with Baltimore-based Innovation Capital Partners, celebrated the grand opening for 331 Innovation Boulevard almost exactly one year after breaking ground. The four-story facility boasts 82,000 square feet of leasable space and is the park's first LEED-designed building.

Over 70 people, including entrepreneurs, Penn State Research staff, and investors, were in attendance to celebrate the opening and tour the remarkable facility. The building, in addition to Buildings 328, 329, and 330, is owned by GLP Development Company. Their total park investment of \$56 million

### "The four-story facility boasts 82,000 square feet of leasable space and is the park's first LEED-designed building."

in just three years is a testament to the uniqueness of being at Innovation Park, like access to Penn State resources and an abundance of networking opportunities.

Space in 331 Innovation Boulevard is now available for lease. Interested parties should contact either Dan Leri at 814-865-5925 or leasing agent Tom MacDonald at 412-434-1028.

# NASCENT DEVICES COOKING UP COOL BLUE TECHNOLOGIES TO SAVE ENERGY

Keeping buildings cool in the United States uses about 8.5 quads of energy per year—put in more accessible terms, that's about the same amount of energy contained in 293 thousand megawatts of electricity or eight billion gallons of gasoline. Air conditioning for buildings is a major expense and generates enormous quantities of greenhouse gases.

Ailan Cheng's Nascent Devices LLC is developing new technologies aimed at replacing traditional vapor compression refrigerators and air conditioners by tapping into the amazing properties of polymeric (plastic) films that cause them to rapidly change temperature when subjected to an electric current. This unique property is known as gigantic electrocaloric effect. If Nascent can harness this gigantic opportunity, future generations may enjoy cleaner, less expensive cooling systems.

"Innovation Park provides a lot of opportunities to work with the Ben Franklin (Technology Partners) and also Penn State's Small Business Development Center and the intellectual property offices."

As Dr. Cheng explains, "It is a material that when you apply an electrical field, the polar molecules line up. Dipoles align in the same direction and the whole system is ordered and the entropy is lowered. If you remove the electric field, entropy increases. So, this is a heat exchange and temperature change material."

Heat exchange is readily accomplished with existing technologies; one major problem to be solved is that conventional systems use chemicals that contribute greenhouse gases into the environment and actually consume energy in doing their work. Nascent's materials themselves do not consume energy and therefore should save money and reduce the environmental impact of cooling systems.

As its name suggests, the company is in its infancy. However, its technology platform, which has been developed in the laboratories of Penn State Distinguished Professor Qiming Zhang, has been developed by Cheng and her colleagues over the past several years and is related to other commercially inventive work Zhang's team is commercializing through his Penn State startup company Novasentis.

Novasentis has raised tens of millions of investment capital to date to explore the haptic—or touch—effects of changes in similar polymers so that a device like a watch, for example, might tap its wearer to alert them of an appointment. Nascent's work is in earlier stages, which makes a lab in Innovation Park's incubator an excellent starting place.

Being able to tap into Innovation Park's multiple resources with the goal to grow Nascent Devices was a big part of the appeal. "The Park was naturally our first choice," Cheng says. "Part of the reason for that is that we know that Innovation Park provides a lot of opportunities to work with the Ben Franklin (Technology Partners) and also Penn State's Small Business Development Center and the intellectual property (Office of Technology Management) offices."

While there's still plenty of work to be done, Cheng sees progress each day in Nascent Device's research suite. The company is looking to expand, and is currently looking to hire additional technical staff, an effort being supported by taking advantage of the Park's network.

"Honestly, our technology is still in an early stage," Cheng says. "I don't think we can roll out something like a product to the market very soon. But we are actually developing prototypes right now. We hope we'll have a prototype within a year from now."

Novasentis and its young relative Nascent Devices are two hot incubator companies based on Penn State materials research—small wonder PSU ranks number one in this field.



Brenda Cummins and Michelle Cook from the Innovation Park Office

## COMMUNITY FEEL

EMPLOYEES ENJOY PERKS YOU CAN'T FIND ANYWHERE ELSE

**BY LEAH GRUBB** 

In a world of traditional office parks, Penn State's Innovation Park stands apart as one of the most unique and fun places to work. The park's coolBLUE Community hosts employee events year round—from opportunities for networking and celebratory lunches to tours, seminars, and even concerts.

The coolBLUE community is designed to encourage networking and bring companies together as part of a larger business community. The program helps employers retain top talent by providing benefits that their employees will love—opportunities for fun, fitness, and personal and professional development.

In the past year, the coolBLUE Community has brought award-winning musicians, unique tour opportunities, and fitness programs to the park. Just this summer, employees participated in a park-wide picnic on a beautiful day. They enjoyed the company of fellow park employees while savoring summer food favorites from the Penn Stater Conference Center Hotel and ice cream from Berkey Creamery.

What's holding you back from relocating and beginning your journey at Innovation Park? We'll be here waiting when you're ready.

## THE ROAD TO SUCCESS ATTENTIVENESS TO CUSTOMER NEEDS BRINGS HIGHEREDJOBS STEADY GROWTH

BY LEAH GRUBB

Since John Ikenberry, President and Co-Founder of HigherEdJobs, and his partners founded the company in 1996, it's seen steady growth each and every year.

In nearly two decades, Ikenberry's company has expanded and now boasts over a million unique visitors to its website each month, and just last year posted almost 160,000 jobs for over 2,000 college universities. And while many think there's a secret to success in the world of business, John recounts a cautious and straightforward approach to growth.

When they founded the company in 1996, John and his two business partners were working for the development office at Penn State. In their search for next steps in their careers, they recognized that the web would be a much easier way to communicate job openings to potential applicants. "We identified a need," said John. "Instead of flipping through hundreds of pages of leafy ads, you could go through quickly [on the web] and find what you're looking for."

"[Back then], it was harder to find information on the opportunities," John continued. "Probably a much smaller percentage of open positions were advertised nationally at that time."

John and his team decided to give the company a try (as a side job), got incorporated, and created an initial prototype of the website.

After a few years of providing free service to employers and job seekers, they started selling banner ads to corporate advertisers to help support the website. In these first couple years, the team worked from their homes and just focused on building an audience for the website.

Eventually they transitioned to a model in which employers were charged to post their job ads to the site.

Once the company started to take off, around the spring of 1999, John and his partners left Penn State to pursue their business venture full time.



Turning your hobby or side job into your fulltime job is a big move. John lists three things for entrepreneurs to consider before making the leap. "You have to feel confident in your business; confident in your business idea; and confident that you can run your business for a profit."

In the spring of 2000, John and his team moved to the Innovation Park business incubator. They started in what was then called the Innova Zone: a group of small, individual units with shared resources.

As the company steadily grew, the addition of more staff in the sales, IT, and administration departments became necessary.



John Ikenberry, President and Co-Founder of HigherEdJobs

Needing more space, the company moved in 2008 to 328 Innovation Boulevard, its current location.

While John recognizes the company is in a competitive industry, he's confident in the future of HigherEdJobs.

"We have built up a nice audience," he said. "I think we do what we do very well, and we also have an advantage because we've been doing it for so long."

Among the list of factors contributing to the success of the company, John listed: keeping a steady eye on their customers' needs, staying abreast of technology to help connect candidates and employers, and continuing to refine their process.

"It's really about continuing to refine and better our business," John said.

His team is always asking questions, he said, like:

"Is there a change we can make to the website to make the company better? Is there a new product that we can come up with to help serve our audiences? Is there a change that we should be making to our marketing material to better communicate what it is that we're offering?"

"One of the aspects that I love about what I do for a living and what we do as a company is that we are helping people move on in their careers, making their lives better," John continued. "We're also helping colleges and universities find the talent that they need to help them fulfill their missions, whether it's educating their students, advancing research, social benefits, you name it."

John's reasoning for locating in Innovation Park is simple. "It's quality office space and it's a good location that's easy to get to for our employees."

John's one piece of advice to other entrepreneurs? "If you have a dream that you're passionate about, I would encourage you to explore that," John said. "Particularly if you're at a time in your life when you feel you can pull it off. Sometimes, in life, it gets harder to—as life goes on and you have other commitments. Sometimes those can be hard to do. But even then, you only go through life once. So figuring out what you want to do and pursuing it, that's what it's all about."

# ALEO BME, INC. MAKES BREAK-THROUGH IN NERVE REPAIR AND REGENERATION

### BY TRAVIS JOHNSON

The low hum of fluorescent lights mixed with electric whirs from walls of scientific equipment form a peaceful soundtrack inside Aleo BME, Inc.'s Innovation Park laboratory. But the peace is broken by metallic screeches as the company's chief scientist Jian Yang forces a large desk onto a loading cart and out the lab's doorway.

This moving project is a result of the biotechnology R&D company's ongoing expansion. Yang's wife, fellow scientist and the company's CEO, used to sit at the desk and field calls in the lab.

"He's just moving it down the hall," Chao Liu says. "We need a quiet place to answer the phone!" Such is the life of a start-up when the head scientist also has to move office furniture.

Further evidence of Aleo BME's growth since the three-person company moved into Innovation Park's technology center this past summer can be found in its progress in multiple fields of study — chief among them, a dye that can help make critical early diagnoses of cystic fibrosis and of a nerve regeneration device Yang says will be a "game-changer."

### "We can get a lot of help from a lot of the programs. They're all very helpful. This is why we feel like we belong here."

A Professor in Penn State's Biomedical Engineering department, Yang was looking for a way to further develop and test the fluorescent dye technology he helped invent and licensed from Penn State.

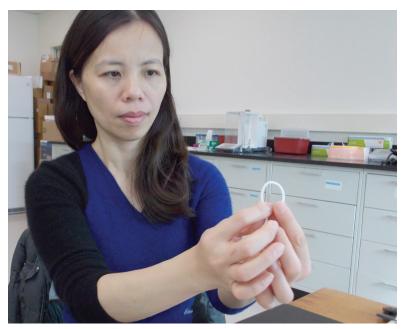
To do so, he'd need a lab and funds to continue his work on the groundbreaking substance that can easily detect chloride concentration in sweat without interference from bromide and iodine as current cystic fibrosis tests do. As a result, those existing tests are less reliable and make early detection tough.

Innovation Park has given Yang and his team a great staging ground in their second-floor laboratory, and investment programs for start-up companies have helped Yang and Liu advance their work with opportunities for funding and promotion.

Settling on lab space was the first step. That was easily done when Liu said she simply walked up to the tech center's second floor on a single recommendation and laid eyes on a pristine spot. It would soon be filled by the machines the company uses today.

"You couldn't find any labs as good as this," Liu says. "This is fantastic. All these things, we bought. We got going quickly. It took us like two or three months to build this capability."

"We are scientists. We don't know how to run businesses," Yang adds with a chuckle. "But in this kind of environment, we feel very comfortable. We can get a lot of help from a lot of the programs.



Chao Liu, CEO of Aleo BME, Inc., holds up a peripheral nerve tube, which is used for nerve repair.

They're all very helpful. This is why we feel like we belong here. We can be more successful and focus on our product development."

The company is off to great start.

Yang has been testing the dye — AleoFluoS — with positive results and expects to move out of the Institutional Review Board stage "very soon."

Yang and his team have also used Innovation Park to develop what he describes as a major breakthrough in the field of nerve repair and regeneration. His interest in the area of nerve therapy came as he watched a handful of his favorite athletes — primarily NBA stars Kobe Bryant and Steve Nash — struggle with nerve-related injuries.

As Yang watched Bryant struggle to shoot the ball due to an ulnar nerve issue in his shooting elbow, he got the idea to look into developing a cast of sorts for nerves.

His eyes light up as he reaches into his shirt pocket and pulls out a small plastic bag containing a tiny, white tubular shaped object.

"With a small-gap nerve injury, doctors would have to suture the nerve," Yang says. "With that, the nerve doesn't grow very well, especially when the gap is bigger. What we're trying to do is develop some magical polymer, like an elastic material that can simulate the soft, elastic property of the nerve. We're making this tubular structure to bridge the gap to help the nerve to grow together."

Yang says they have tested the device — officially dubbed the Peripheral Nerve Conduit — on rats and have successfully repaired nerve gaps of up to 1.3 centimeters. He and Liu are looking forward to trying larger gaps with the biodegradable tube, up to two centimeters. For injuries that result in those sizable gaps, there is no existing product that can help nerves grow over those distance, he says.

"If that proves to be successful, this is a game-changing technology."

Aleo BME will continue to use its lab space — and new office down the hall — to develop these technologies.

"It's Innovation Park," Yang says. "It's very nice, a very entrepreneurial atmosphere."

For companies like Aleo BME, whose business development is dwarfed by its ambition to innovate scientifically, the Park provides a home to work on both aspects of company development efficiently and with a support team.

## **THE STORY BEHIND NOVASENTIS REVOLUTIONARY ELECTRO-MECHANICAL** POLYMER PROMISES TO HERALD A NEW PHASE IN HAPTICS

### **BY EILEEN WISE**

Many people are not aware of advances in a technology that is already a big part of their lives, and is about to get even bigger. That technology is called "haptics" and is part of nearly all mobile devices, such as cell phones and wearable technology systems. When you get a call or a text, you are notified in two ways-by sound and by vibration. "Haptics" refers to the tactile sensation of vibration touching the skin.

Novasentis is a company in State College that is leading the nation in bringing to market a revolutionary electro-mechanical polymer that promises to herald a new phase in haptics with many new applications. "There's nothing like this material in the world," said Rick Ducharme, Vice President of Engineering. "The performance beats any incumbent technology including ones released in the most popular smartphones."

The patented electro-mechanical polymer, known as EMP, was developed by Qiming Zhang, distinguished professor of electrical engineering and materials science engineering at Penn State. The polymer is clear, ultra-thin, and flexible, which makes it ideal for use with small, portable, and wearable personal electronic devices and accessories. "There are many possible applications for this technology," Ducharme explains. "Everyone wants to try it, whether it's inventors at home tinkering to every single industry you can imagine."

Novasentis was founded in 2006 when CEO Ralph Russo, a former Apple executive, partnered with CTO Zhang and licensed the technology from Penn State. Then called Strategic Polymer Sciences, Russo and Zhang spent the first two years advancing the start-up's concept of haptics and sensory technology. From 2008 to 2014, company executives and engineers explored several possible avenues for applications of the new haptics technology-in the fields of medicine, automotive technology, and computers.



Novasentis Actuator in a wearable device

Ducharme, who joined Novasentis in 2012, was enticed by the medical applications of the EMP. With a biomedical engineering degree from Cornell, Ducharme had gone to work for Cook Medical in North Carolina, and was designing a variety of medical devices. When he saw the potential of the strategic polymer for use in cardiac catheters, he was hooked.

"What makes this material unique is how incredibly thin, flexible, and tough it is. The way it works is that the molecules in the polymer are normally randomly distributed and when electricity is applied, the molecules line up in an array and stretch. When bonded to a substrate, the stretching and retracting bends the substrate material, creating the tactile sensation. And that substrate can be very thin. The actuators we've developed are only 120 micrometers thick-thinner than a sheet of paper."

In the past two years, Novasentis entered a new and even more exciting phase. The company changed its name to reflect a new, more focused agenda. It coined the term Neo-Sensory™ Age, heralding a new generation of haptics technology for consumer electronic devices. It maintains its commercial activities via its California office while technology and manufacturing reside in its State College facility. And the company has defined its niche.

It is a fabless actuator maker (which means that Novasentis does not manufacture its own products, but instead licenses third party fabricators). Novasentis works closely with its customers-large original equipment manufacturers (OEMs)--to design the prototypes for a variety of applications in the wearable devices industry. Some examples are smart watches, head bands, fitness bracelets, smart shoes, and a whole host of smart wearable devices that are currently being designed with or without an electronic display. All of them could use Novasentis' haptic actuators to provide the user with valuable information without having to glance at the display.

"We are a platform technology," says Ducharme. "We will maintain the intellectual property and the specific design. In this way we take advantage of all the work we've done already. But we also want to make the integration of the actuators as easy as possible for the OEMs. So we will continue to design prototypes."

In 2013 Samsung Venture Investment Corporation infused \$8M in funding. Earlier this year, Novasentis named Francois Jeanneau President and CEO to take this unique technology to commercial success.

"Our technology was developed by the team based in State College. We have access to laboratory and other resources in the area, so it made perfect sense for us to have our research facility there," said Francois Jeanneau, President and CEO of Novasentis. "We are revolutionizing the nascent wearables industry by making an actuator that virtually disappears into the device and provides invaluable information via sensory feedback."

With the new focus on wearable devices, it became clear that the R&D being in State College was the right decision. "We have Innovation Park, the Ben Franklin Technology Partners, the CBICC, and a large number of technology transfer companies getting their start in the area," says Ducharme. "Intellectually, Penn State has the theoretical and technical knowledge and skill in materials and in sound and vibration. It's considered a vibrations and materials 'hot spot' in the world."

Ducharme says that he also loves the climate, reasonable cost of living, and the myriad of outdoor activities and sports available in Central Pennsylvania.

#### REVOLUTIONIZING BULLYING BULLY

### BY LEAH GRUBB

For Linsey Covert, teamwork has always been an integral part of life. And now it's the foundation of her career and newly launched initiative, Project TEAM.

Project TEAM includes Linsey and leading researchers Dr. Richard Hazler and Dr. JoLynn Carney. The team recently graduated from the Ben Franklin TechCelerator Boot Camp for Entrepreneurs, taking home \$5,000 as one of two prize winners.

As a high school and college athlete, being part of a team was always part of Linsey's life. A hip injury in college track and field ended her career as a hurdler, and she realized later, left her without a team.

"While anti-bullying or bullying prevention is a piece of Project TEAM, it's certainly not the whole scope of what we're trying to do. The focus is really to build an understanding of the value of working together."

"A couple months later it really hit me that I had lost my sense of feeling connected and being a part of a team. That was the first time I remember not being part of a team, and to me that was devastating. That was when I realized the value of teamwork."

Now a licensed counselor, Linsey did her masters research on adventure-based counseling. "I realized there wasn't anything available on the market as a resource for counselors to be using school-wide to help kids come together as a team and feel that sense of belonging and motivation from being connected. So I began developing what is now known as Project TEAM."

Project TEAM isn't your typical school-wide program. It's a movement that changes culture and empowers students to want to be part of the team.

"A lot of different approaches have been taken to reduce bullying and school violence, and most of those approaches only focus on one problem—bullying," said Linsey.

Linsey's team has found that a comprehensive approach to bullying that focuses on building a team culture is more effective.

"While anti-bullying or bullying prevention is a piece of Project TEAM,



Students hold up the Project TEAM logo with their hands.

it's certainly not the whole scope of what we're trying to do," Linsey said. "The focus is really to build an understanding of the value of working together."

As a licensed counselor, Linsey had little experience with business, and was unsure of how to bring her program to the market until she got connected with Ben Franklin Technology Partners in Innovation Park. A contact suggested she reach out to Ben Franklin and, after a meeting with Don McCandless and John Vidmar, she started working her way through the TechCelerator program.



Linsey Covert, Director of Project TEAM

While Linsey admits that learning about entrepreneurship was exhausting, she credits the TechCelerator as a critical step in the successful launch of Project TEAM.

"Something clicked with me probably about six or seven weeks in, and I was like 'Wow, there's something to this. This definitely can fit this model.' Just learning how to approach the market, learning what the value proposition of Project TEAM was, and understanding how to launch your product was huge for me and for Project TEAM," she said.

"Like other successful TechCelerator start-ups, the boot camp program helped position Project TEAM to actually form a company and launch as a business."

Like other successful TechCelerator start-ups, the boot camp program helped position Project TEAM to actually form a company and launch as a business.

Project TEAM has been implemented in all four elementary schools in Waynesboro, Pennsylvania, as a pilot program and has been used in New Jersey for more than five years. The program is based on six foundations—helping others, positive change, anti-bullying, problem solving, resiliency, and leadership. To illustrate these six pieces of working as a team, Linsey has students participate in building the house that represents the concepts of Project TEAM.

Linsey describes the process that students use: "Students will build the foundation. Wall one is helping others. Wall two is positive change. The orange ceiling is anti-bullying, because orange represents bullying-prevention. The first window is problem solving, and window two is resiliency. Finally, leadership is the red door in the Project Team house. The house gives the kids the idea that if they're using all of these skills, [they'll know] how to work together and how to be a team."

"The slogan for Project TEAM is 'Are YOU in the house?," Linsey continued. "This serves as a constant reminder for students to think about the six foundations and how they are (or aren't) applying them."

Linsey and her team are carefully monitoring the success of their program and populations in which it is most effective. They are working to constantly improve the program, making sure to be strategic and prepare the program for distribution to other schools. Future plans include outreach to schools in the Pittsburgh and State College areas.

### Salimetrics, LLC: Salimetrics' assay kits

to measure salivary analytes related to stress, behavior and development, inflammation, sleep, reproduction, health, and immune function. Founded in 1998 by Douglas A. Granger, Ph.D., Salimetrics, LLC supports researchers and the immunodiagnostic industry around the world with innovative salivary immunoassay products and laboratory services.



100

Outreach

Building

**Penn State Public Broadcasting:** Through WPSU, as well as Educational Services, Media Solutions production unit, and Media Sales department, Penn State Public Broadcasting enriches the quality of life for their diverse audiences. They produce, acquire, and distribute programs that address local interests and reflect the diverse cultural, political, geographic, and demographic characteristics of their constituencies. Their programs encourage the diversity of opinions and perspectives, while ensuring balance, fairness, and a commitment to editorial integrity.

> **200** Technology Center

**RTD Embedded Technologies, Inc.:** RTD Embedded Technologies is a manufacturer of microcomputer data acquisition interface boards and single board computers.

**103** Innovation Boulevard

> Penn Stater Conference Center Hotel

**McCormick Taylor, Inc.:** McCormick Taylor strives to successfully advance transportation improvement projects through sound planning, engineering and design. With every project, their goal is to provide long-term solutions that improve the quality of the communities they serve.

> 331 Innovation Boulevard



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**Center for Innovative Metal Processing** through Direct Digital Deposition (CIMP-3D): A world leader in additive manufacturing, CIMP-3D uses high energy sources—laser beams for example—and powdered metals to add layer by layer to create a part

> Blackboard: Blackboard provides education, mobile, communication, and commerce software and related services to a variety of clients including schools, corporations, and government organizations. Their goal is to make learning more desirable, accessible, and meaningful for learners and to ultimately help improve outcomes for learners.

nnovation Boulevard

**Teledyne:** Teledyne designs and manufactures satellite modems, transceivers, block up-converters, ment of the satellite communications market. Tele dyne is one of few commercial satellite earth station equipment manufacturers with manufacturing and <u>support facilities in both Europe</u> and North America. The ability to manufacture and offer support in two continents differentiates the company as a supplier of satellite communications equipment.

# WHO'S WHO **INNOVATION PARK**

Here's a breakdown of all our park tenants.

### **101 Innovation Boulevard**

AgJunction College of Communications Level 3 Communications Nanowear, Inc. Nittany Technology, Inc. Office of Global Programs Salimetrics, LLC

#### 103 Innovation Boulevard

College of Communications (Studio) Office of Gift Planning Office of Investment Management RTD Embedded Technologies, Inc.

**100 Outreach Building** Continuing Education Penn State Public Broadcasting (WPSU)

#### 200 Technology Center

Airnest Aleo BME. Inc. Alfavor Petroleum Corporation Ascent Bio-Nano Technologies, Inc. Atoptix Ben Franklin Technology Partners of Central & Northern PA ChromaTan, Inc. ColumnTek, LLC Energy Transfer Technology (ETT) ExH, Inc. FairTech Labs Inc. HICO Tech, LLC Innovation Park Office Lasers for Innovative Solutions (L4IS) Ligno Link, Inc. M-Mech Defense, Inc. Nascent Devices, LLC Novasentis Office of Industrial Partnerships Office of Sponsored Programs Office of Technology Management Pan Computing LLC PCI Insurance, Inc. Peak Diagnostics LLC Peconic LLC Pennsylvania Technical Assistance Program (PennTAP) **Prescient Weather** 

Shale Gas Innovation & **Commercialization Center** Small Business Development Center Solid Dynamics Solid State Ceramics TechCelerator @ State College Transformation Business Services Network

**The Penn Stater Conference Center Hotel** Conferences and Institutes The Penn Stater Conference Center Hotel

### **230 Innovation Boulevard**

Applied Research Lab Center for Innovative Metal Processing through Direct Digital Deposition (CIMP-3D)

**Daybridge Child Development** Center

### 328 Innovation Boulevard CDI

Department of General Services, Commonwealth of PA HigherEdJobs.com Middle Atlantic River Forecast Center (MARFC) National Weather Service Blackboard Inc. Teledyne TIAA-CREF

329 Innovation Boulevard Barton Associates

Justice and Safety Institute McCormick Taylor, Inc. Penn State Law, Clinical Programs

### **330 Innovation Boulevard**

Babst, Calland, Clements & Zomnir, P.C. Hazen and Sawyer, P.C. McNees Wallace & Nurick Office for Research Protections Property Management, Inc. Survey Research Center Urban Engineers Urish Popeck Co., LLC

# **URBAN AGRICULTURE:** FROM CONCEPT TO MARKET

BY LEAH GRUBB

A great idea is just that without direction and a clear vision. To truly make a marketable product or service, entrepreneurs must evaluate the market, talk to their potential customers, and lay out a clear path—something The Ben Franklin Technology Partners know well.

TO GROW A SMALL PORTION OF THEIR OWN FOOD

Dustin Betz, Founder and President of GreenTowers USA, credits the Ben Franklin TechCelerator Program, for much of their start-up success. GreenTowers USA created their own vertical growing system to allow for urban agricultural growth. Their vertical growing system allows individuals and businesses in urban areas with space constraints to grow micro greens—a baby green typically harvested between seven and fifteen days after you water it.

"The idea for micro greens was very much a direct consequence of going through the Ben Franklin TechCelerator program," Betz said. "We had a product concept that was a vertical growing system, and we came into the TechCelerator more or less trying to find a customer market fit. Initially, we were looking at greenhouses, but we found out our vertical growing system wasn't really competitive on a cost per square foot basis with other options out there."

"The Ben Franklin Techcelerator really emphasizes the lean startup methodology and talking to your customer," he continued. "So we were talking to a lot of potential customers, and the aha moment was that a vertical growing system concept is cool, but it's really not necessary for somebody who isn't spatially constrained."



The Greentowers team, along with others, after completing the TechCelerator program



Micro greens in Greentowers' vertical growing system

After coming to this realization, Betz's team set out with a mission to help people easily grow some small portion of their own food. "We came to this idea for mail order microgreens trays," Betz said. "Every month customers receive pre-seeded trays of different varieties of greens. Recipe cards are included in the package."

The pre-seeded trays are planted in a dehydrated soil formula and the seeds won't germinate until the buyer waters them. A monthly subscription will get you two trays, enough for a single person. "[The trays] take between one to two weeks until they're ready to harvest," said Betz. "So you'd water the first tray in your box, and then about a week or so later, you'd begin using the greens. Then you'd wait about another week to start growing the next tray, and after that two week growing cycle, you have another box arrive in the mail."

Betz maintains that one of the merits of the product is that it exposes you a variety of different flavored greens. He also explains that "one of the problems with buying bagged salad greens is that they go bad. So another great thing about growing your own greens is that they're alive right up until the minute that you snip them off and enjoy them."

GreenTowers USA was founded by Betz and two other team members. Betz has a degree in plant biology and a minor in horticulture with interests in sustainability. His team of co-founders includes Jon Gumble, who has a degree in horticulture, and Mike Zaengle, who has a degree in design. "We have complementary skillsets and realized early on that we worked well together," said Betz.

"I really can't overstate the value of going through the ten week Tech-Celerator program," Betz said. "At Penn State, I took Engineering Entrepreneurship, the entrepreneurship minor before they rebooted it. I thought it was helpful. It definitely inspired me. I never really thought I'd want to be an entrepreneur at the beginning of college. So, I would say that the minor was inspiring, but I feel like there was also an entrepreneurial attitude that was like 'Yeah, you can do it! Just go do it."

Dustin commends the TechCelerator Program for helping him take what he learned at Penn State and apply it to his specific business.

"Don McCandless, John Vidmar, and the other mentors made you question all of your assumptions and really look closely at what you're saying and challenged you to get out there and talk to potential customers," said Betz. "Not to say we hadn't been exposed to any of that in the minor, but I think that the experts at Ben Franklin have a much more real world, business savvy approach to problem solving. I found the program helpful; it was a refreshing way to look at everything. So the program was really great for us, without a doubt."

## MISSION CRITICAL PARTNERS: SAVING LIVES EVERY DAY TEAM CITES BEN FRANKLIN TECHCELERATOR AS CRITICAL RESOURCE DURING STARTUP

### **BY LEAH GRUBB**

Mission Critical Partners teams up with cities, states, schools, and companies around the country to help improve policy, systems, and processes in life-threatening emergencies. The company delivers top quality technical, operational consulting services to help prepare managers for mission critical challenges.

It all began here in Innovation Park in 2009, and it was quite a risk according to President and Chief Executive Officer, Kevin Murray.

"It was Groundhog Day in 2009," said Kevin Murray. "Our team had just started our own company. We left very well paying jobs and a secure environment to jump out in the worst time ever to start our own company."

Though their original plan to base their startup in North Carolina fell through, a friend of Kevin's provided a solution. "They said 'Hey, did you ever hear of the Ben Franklin program?" recalled Kevin.

The team put in their grant application and quickly took the offer for some space in the incubator. "The incubator gives you an address and it's a nice looking building... It kind of gave us a place to put down some roots," Kevin said.

Kevin speaks highly of the Ben Franklin TechCelerator and the incubator, citing them as a critical resource during their startup period. "Getting started is difficult," Kevin said. "You forget how much work that it is... You'll be talking to a client, putting furniture together, going to the bank, coming up with names, trying to do marketing—you're kind of everything when you get started."

Ben Franklin served as resources for IT support, facilities, and networking opportunities. "[Ben Franklin] put us in touch with a lot of local resources we needed to kind of get self-established," Kevin commented. "It was a good place to go—when you're doing your own business, where do I get IT support? Who do you know that does printing? You could go to the TechCelerator and someone could answer your questions."

"They had great conference rooms and facilities," Kevin continued. "At one of the CBICC events held at the park, I met two of the county commissioners and got to introduce my business to Chris Exarchos and Steve Dershem."

Following this introduction, Kevin and his team partnered with the county. It's through events like these sponsored by Ben Franklin Technology Partners that startup companies like Mission Critical Partners can create a network.

"For us, Ben Franklin was part of the recipe for success," Kevin said.

Mission Critical Partners has taken it one step further though. Since they have graduated from the Incubator program, they continue to foster a sense of community between entrepreneurs and fellow startup companies. They're truly grateful for the resources that Innovation Park provided and are paying it forward to fellow entrepreneurs.

While in the incubator, Kevin's team got some office supplies from people who had equipment for sale. "We donated some of our equipment to companies that were moving in and starting up," said one member of Kevin's team. "We are still tied into the network today... I make time to make sure we're giving back," Kevin said.

### PENN STATE STUDENTS DISCOVERING CUTTING-EDGE TECHNOLOGIES PARTICIPANTS IN THE INAUGURAL

PARTICIPANTS IN THE INAUGURAL SUMMER FOUNDERS PROGRAM PRESENT THEIR PROGRESS

BY LEAH GRUBB

Penn State's inaugural Summer Founders Program proved to be a valuable investment in bright young entrepreneurs. On August 27, students from the six participating teams presented their work during Demo Days, bringing some incredible businesses to the forefront, including:

- **Project Vive, led solely by Mary Elizabeth McCulloch:** Mc-Culloch designed an affordable device for those who can't speak. The Project Vive glove requires small hand movements to form full sentences. This solution to overcome non-verbal communication barriers brought on by cerebral palsy and other disabilities costs a fraction of what current devices cost.
- Gastrograph, led by Jason Cohen (founder and CEO): Cohen's team created machine-learning and artificial intelligence-based sensory tools for the food and beverage industry. This software has applications in quality control, flavor profile optimization and product development, production process optimization, demographic targeting, and cognitive marketing. It can also identify and predict defects and contaminations in real time with over 99.99% accuracy.
- ResumeRuby.com, created by Mitch Robinson, Spencer McCollough, and Zach Zimbler: This website features tools that allow individuals to easily create outstanding resumes and cover letters and to practice for interviews.
- MichelAngelo, consisting of Linggiu Jin, Brennan Cornell, and Robert Chisena: The team is in the process of designing a less painful and less invasive endoscope for patients suffering from gastrointestinal issues.
- Mobium Solutions, consisting of Kevin Paroda and Justin Kennan: This group developed ECHOdrive, an add-on for 3D printers that allows you to print multiple parts out in an assembly line fashion (without human intervention).
- Undeniably Fit, LLC, created by Samuel Jackson and Grant Dean: This group created UFit Thrive, a fitness program designed for those suffering from diabetes. Jackson and Dean say they created UFit because diabetes can be stopped and they want to be a part of the movement against it."

Those in attendance at Demo Days were impressed with the progress all of these young entrepreneurs have made in just a few months! To learn more about the Summer Founders Program, visit www.psufounders.weebly.com.

# **"ENGAGEMENT WITH PARENTS SETS US APARTS SETS US APARTS**"

Managing childcare can be a challenge for working parents, especially when kids are infants. Fortunately for parents employed by companies in the park, one of Centre County's top-rated childcare centers is located in the heart of Innovation Park. Daybridge Child Development is a NAEYC-accredited facility with programs for infants through school-age kids, and Director Bettie Miller says the center is truly a special place for families.

"I think it's that relationship we have with our parents," Bettie says. "We have an open door policy. Parents can drop by here at any time of the day. We have nursing moms who are able to continue nursing when they are back at work full-time—they can walk over here. I have parents who come over three or four times a day, and it's not just infant parents. Once you start making that connection with parents it enhances the whole ambiance of the center. It's that engagement with parents that sets us apart."

Bettie explains that this relationship helps parents in the future, too. "I want my staff to listen and communicate effectively with parents because I believe that children really benefit when their parents are involved in their education. Here at Daybridge, we start parents out on the right path and help prepare them to remain involved when their children enter elementary school."

Amber Wolfe, a graphic designer for Schoolwires, describes what attracted her to bring her oneyear old daughter, Everlee, to Daybridge. "You can't beat the location. I drop her off, and I'm right here in less than a minute. And they do such wonderful things with the kids."



Daybridge director, Bettie Miller (right), and assistant director, Heather Prospero, keep the office running smoothly. (Co-assistant director, Cheryl Zeljak, not shown.)



Graphic designer, Amber Wolfe, and 1-year old daughter, Everlee, start their day at Daybridge Child Development Center. Amber's employer is Schoolwires, an Innovation Park tech company.

The program has 10 classrooms and is staffed by 38 adults. The highest demand is for infant care. "I could fill two more classrooms with infants if I had the space," Bettie explains. "Parents who will need infant care need to let us know right away."

Daybridge is owned and operated by CCLC, a successful national corporation that provides child care services to universities, hospitals, and large companies that wish to offer child care on site for their employees. Innovation Park is fortunate to be among numerous nationally recognized organizations that have CCLC programs on site, including the United States Drug Administration, the Wells Fargo corporate office, and Pixar Studios.

"CCLC strongly supports quality," continues Bettie. "We have a wonderful curriculum. It's called Early Foundations, and it is constantly being reviewed and developed." The curriculum meets all of the requirements of the State of Pennsylvania early learning standards, as well as the National Association for the Education of Young Children (NAEYC) standards.

Having an on-site daycare is one of the many qualities that set Innovation Park apart from other office parks. The many benefits of Daybridge being right inside the park include:

- **Proximity:** Parents are just a short drive/walk away from the daycare, meaning they can stop in and see their children on a break.
- **Convenience:** Daybridge offers top-notch care with flexible programming, making child care convenient and easy for park employees.

Built in 1997, Daybridge serves children from ages six weeks to 12 years with full-day, part-day, and afterschool and summer care. The center offers discounted tuition to other chamber businesses as well as Innovation Park tenant companies.

Daybridge offers special perks, like an exciting before and after school program for school-age children, and summer adventure and special interest camps. Daybridge also provides bus service to and from local elementary schools to aid parents with children of multiple ages.

## PENN STATE EMBRACES NEW APPROACH TO ENTREPRENEURSHIP STUDENT INITIATIVES REPRESENT TECTONIC SHIFT

### BY HARRY ZIMBLER

Penn State President Eric Barron has laid out a program that emphasizes the transfer of Penn State research and intellectual property to real world applications and startup businesses. Barron's ambitious plan starts at the student level with a fresh look at curriculum across the University.

Robert Beaury, Interim Director of the Engineering Entrepreneurship Minor, said that great progress has already been made and there is much more to come, and soon.

"There is an incredible difference between what Penn State did five years ago and what it is doing today," he said. "It's night and day. Then, there was little support for faculty and students who wanted to start a business. Now, there is real, concrete change taking place. The movement to promote and foster those who are entrepreneurial is getting stronger every day."

At one time, entrepreneurship classes and experiences only touched the lives of a small group of students. Now, instead of 40 students, the program is assisting 175 students. "The program was restructured to support many more students," Beaury said.

Today, there are seven approved clusters of entrepreneurship:

- The tech-based entrepreneurship cluster in the College of Engineering
- The social-based cluster in the College of Engineering
- The New Ventures cluster in the Smeal College of Business
- The Hotel and Hospitality Management cluster in the College of Health and Human Development
- The Digital Innovation cluster in the College of Information Science and Technology
- The Food and Bio-Innovation cluster in the College of Agricultural Sciences
- The New Media cluster in the College of Communications

"The College of Arts and Architecture is currently developing its cluster," Beaury said. "Other colleges are expected to do the same, so it's continuing to grow."

In addition to a refocusing of undergraduate curriculum, graduate-level programs are in various stages of development. For example, there is a one-year Masters-level program in Leadership and Intrapreneurship. According to Beaury, "This provides employees in large organizations a new way to act as an entrepreneur within those organizations."

Outside activities are also taking place, like the Summer Founders program. Groups of entrepreneurs were picked from 45 applications, and they were each given \$10,000 to stay in Happy Valley for the summer to work on their business projects.

Beaury said new competitions for startup groups are popping up all the time at Penn State and neighboring campuses looking for ways to partner and learn from one another. "Bucknell, Penn State, and Pitt Johnstown are cooperating on a Shark-Tank like competition," he said. "This program is sponsored by a significant grant from the Pennsylvania Department of Community and Economic Development."

He also noted that Global Entrepreneurship week, scheduled for the week before the Thanksgiving holiday, will be recognized prominently at Penn State. "It's a worldwide event," Beaury explained. "Last year, Penn State was number one in the events scheduled by one institution for the week. I'd say we're a big deal in this effort. When it comes to entrepreneurship and transfer of technology, I see real positive change here at Penn State."

### **NEWS FROM THE** I-99 CORRIDOR BEDFORD COUNTY'S LAMPIRE PIOLOCICALS EXPANDS SIGNS

BIOLOGICALS EXPANDS, SIGNS \$5.5 MILLION CONTRACT WITH PHARMACEUTICAL FIRM

### BY HARRY ZIMBLER

The I-99 Innovation Corridor joins the Altoona and University Park campuses of The Pennsylvania State University along with the economic development organizations in Blair, Bedford, and Centre counties.

It is home to innovative technology-based companies, manufacturers, and life science companies.

Among the many benefits of the I-99 Corridor are:

- A vast selection of locations for companies including 18 business parks
- 2,648 square miles to live, learn, work, and play
- A regional workforce of 500,000+
- Access to two regional airports (University Park and Altoona)
- Access to resources and talent from Penn State, six technical/business schools, and four additional regional universities/colleges

One such company located in the I-99 Corridor is leading the region into the exciting field of biotechnology.

Lampire Biological Laboratories is in the process of expanding its Everett facility's manufacturing capacity to meet the needs of a \$5.5 million contract that is scheduled to be completed over the next five years.

"We have a new contract from a Fortune 50, international pharmaceutical company," said Gregory Krug, president and CEO at Lampire. "We will be doing a specialized tissue processing, preparing the tissue for a special extraction."

Lampire Biological Labs has been named as one of Pennsylvania's top companies in workforce development and has established numerous relationships with Penn State researchers.

The extraction itself will be done by the pharmaceutical company, Krug explained. The resulting material will be an injectable product that will aid in the treatment of arthritis.

"We are not expanding our facility. Instead we are renovating internal space and giving our staff an additional 3,000 to 4,000 square feet of manufacturing space," said Krug.

The new contract required the purchase of specialized equipment and water systems costing \$900,000.

Krug and Lampire are leaders in the burgeoning field of biotechnology, creating products that are saving lives across the nation and world.

### TECHCELERATOR GRADUATES FOUR MORE TEAMS TWO WINNERS RECEIVE \$5,000

On Tuesday, December 8, four teams participating in the Ben Franklin TechCelerator program gave their final presentations to a panel of judges consisting of local experts.

The judges selected two winners—Heliome and Biotransitions—which received \$5,000 to help advance their startups.

Heliome, led by Dr. Andrew Patterson, is a virtually based startup that formed in late 2015 and is focused on developing innovative drug treatments for metabolic diseases, such as Diabetes and Obesity. The team is developing effective and safe drug therapies and hopes to use their \$5,000 to find a physical location in the area.

Biotransitions, led by Jeffrey Catchmark, plans to use its prize money to continue developing biofoam technologies for wound care applications.

Other participants included Aleo BME and Spherical Acoustics.

Working with these and other companies, the TechCelerator program promotes entrepreneurship in our community and helps boost economic development.

With more resources for aspiring entrepreneurs and startups becoming available in the area, economic development has seen a rise. In 2014, over 650 jobs were created in Centre County from technology startups alone.

## FINDING THE RIGHT ENVIRONMENT AND TEAM BY BENJAMIN HALL, FOUNDER OF L41S

Ben is the Founder of Lasers for Innovation Solutions (L4IS). The company that uses lasers to create digitized, 3D models from physical samples. They offer Laser Micro-Processing services & capabilities and Laser Ablation Tomography

It seems, based on my experience trying to get the startup off the ground, that putting yourself in a supportive environment is extremely important.

services.



It's kind of like chaos theorythe end result depends strongly on the initial conditions. That is to say, surround yourself with people (especially partners) who are motivated, passionate, and excited at the potential of what your new endeavor can offer. Despite what one might think, it is next to impossible to efficiently manage a complex, multifaceted organization that has the deck largely stacked against them. Choosing the right people is paramount.



Benjamin Hall, Founder of L4IS

The environment is equally important. Starting my company (L4IS, LLC) in the incubator after taking the TechCelerator startup bootcamp was integral to achieving our initial successes. Having resources that could help us manage marketing, financial, legal, and intellectual property challenges, Ben Franklin Technology Partners and the incubator at Innovation Park allows us to both learn the intricacies of business operations, and maintain focus on core product development.

# HAPPY VALLEY ATTRACTIONS

### **Pegula Ice Arena**

Pegula Ice Arena is not your typical hockey rink. It features a memorabilia shop, an interactive history of Penn State Hockey, various concession stands, suites, loge boxes, and club seats. It also boasts beautiful views of Beaver Stadium and Mount Nittany. State-of-the-art media and broadcasting facilities allow Penn State to host NHL and AHL games, bringing hockey's best to State College. Locals and visitors to Happy Valley can also take advantage of the community rink, which is open weekly for public skating.

### **Raystown Lake Region**

Located in Huntingdon County, the Raystown Lake region offers opportunities for camping, fishing, boating, kayaking, and biking. It's also a hiker's dream with multiple scenic trails surrounding the beautiful 8,300-acre lake. You can enjoy live music at The Amphitheatre, cruises on the Proud Mary Showboat or the Princess Lake Cruiser, or a meal at Lake Raystown Resort.

### Palmer Museum

The Palmer Museum, located right in the middle of Penn State's campus, is the premier art gallery in the area. Admission to the museum is free, and they offer a spectacular array of exhibits, lectures, and more.

### **Mount Nittany**

Happy Valley is home to Mount Nittany, which offers breathtaking views of Penn State's campus and the State College community. Hiking Mount Nittany is a rite of passage many say every student and community member should experience. For some, it's a strenuous hike, but it's all worth it when you get to the top.



Pegula Ice Arena Innovationpark.psu.edu

# **SIX REASONS** HAPPY VALLEY IS A START-UP/ RELOCATION DREAM SPOT WHY BUSINESSES ARE FLOCKING TO THE AREA

As home to Penn State University and Innovation Park, Happy Valley is an ideal locale for startups or business relocation. Its small-town feel mixed with big-city opportunities makes it a dream spot for businesses at any stage. Those who've relocated here have found the move to be richly rewarding, benefitting not only their businesses but their families and their lifestyles.

A growing number of businesses are putting down roots in Happy Valley due to unique benefits that other locations simply don't offer, especially these six qualities that set us apart:

1. Access to Resources, Talent, and

**Technology:** Happy Valley is home to Penn State University, one of the country's top research universities. People from around the world come to study and conduct research at Penn State, giving local businesses access to a highly educated talent pool. You also have access to Penn State's scientific, engineering, and technology resources and grad students. In addition, the area offers world-class conference and meeting facilities at The Penn Stater Conference Center Hotel.



The Penn Stater Conference Center Hotel offers worldclass meeting facilities.

- **2. A Strong Support System for Budding Entrepreneurs:** Happy Valley offers a number of resources for startups, as well as established businesses. The incubator at Innovation Park offers space, shared resources, and business coaching from professionals. Entrepreneurs also have the opportunity to join the Centre Region Entrepreneur Network (CREN), which offers a forum for entrepreneurs in central Pennsylvania to get together with their peers and discuss business successes and struggles.
- **3. It's a Family Town:** Happy Valley is brimming with opportunities for family fun, such as outdoor recreation, sporting events, the performing arts, and much more. Summer brings the nationally renowned Central Pennsylvania Festival of the Arts, with its hundreds of purveyors of fine arts and crafts, music, and food. In the winter, families enjoy First Night, an alcohol-free celebration of New Year's featuring performances, carriage rides, ice sculpture galleries, and loads of fun activities for kids.
- **4. Access to a Number of Great Education Options:** When it comes to education for your children, you'll find exactly what you need right here in Happy Valley. Centre County has a number of great school districts, including State College Area School District. The school offers unique courses you won't find other places, such as culinary and



computer programming courses, as well as a broad curriculum of college-preparatory classes. There are also Catholic education options, including Our Lady of Victory Catholic School and St. John the Evangelist Catholic School in Bellefonte for elementary students and Saint Joseph's Catholic Academy in Boalsburg for high school students. State College also offers over 35 daycare facilities, so you can choose the best option for your family.

- **5.** The Best of Both Worlds: State College isn't your typical small town. It's a place that accommodates a diverse range of lifestyles. It's a town for families, but also suitable for young professionals—offering fine dining, local and well-known entertainment, and a vibrant nightlife. You can live in the heart of State College, on the outskirts of town for a suburban lifestyle, or in nearby rural areas for something more laid back. Our wide range of restaurants can accommodate any dietary needs or preferences. Happy Valley is truly a town for everyone.
- **6. No shortage of Entertainment:** Happy Valley offers a number of venues for the performing arts, including the Center for Performing Arts, The State Theatre, and The Bryce Jordan center.

Just this fall, these venues have featured some of the biggest names in the music industry, including Paul



McCartney, Mavis Staples & Joan

The State Theatre hosts performances from local and popular artists year-round.

Osborne, Lucinda Williams, and Wynton Marsalis. You can also enjoy the Arts at Palmer Museum of Art and the Bellefonte Art Museum for Centre County. Complement these activities with our abundance of outdoor treasures—Raystown Lake, Tussey Mountain family fun, Penn State sporting events, Spikes professional baseball, Rothrock Forrest, Black Moshannon Park, to name a few—and you will be busy and engaged year-round.

Happy Valley: A welcoming spot for any business endeavor and the families of your employees!



## Now Leasing for 331 Innovation Boulevard, State College

82,000 Square Feet of Class A Office and Research Space Available







- The Innovation Park community offers:
  - Resources and a network for start-ups and expanding businesses
  - World class research facilities and meeting spaces
  - Access to top talent and cutting-edge technology from Penn State
  - Employee perks, including opportunities for fun, fitness, and personal and professional development

• Daycare services right inside the park

*If you're interested in leasing space in 331 Innovation Boulevard, contact leasing agent Tom MacDonald at 412-434-1028.*