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Spartan Weekly

Community news from Spartanburg and the surrounding upstate area
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AROUND TOWN

Steel Magnolias opens March 9 at Chapman Cultural Center

The Spartanburg Little Theatre's next production in its 2017-18 season is the southern classic *Steel Magnolias*. The play, which premiered off-Broadway in 1987, inspired the 1989 film starring Julia Roberts, Shirley Maclaine, Sally Field, Olympia Dukakis, Daryl Hannah and Dolly Parton. Performances are March 9, 10, 15, 16, and 17 at 8 pm and March 11, 17, and 18 at 3 pm.

Honey. It's the 1980s. In Louisiana. At Truvy's beauty shop — motto: "There is no such thing as natural beauty" — the women are all sass and brass. Through clouds of hairspray and over the buzz of blow dryers, six southern spitfires gather each week to gossip and support each other through thick and thin. But those bonds are about to be tested when M'Lynn and her daughter Shelby face a life-changing event. Infused with heart and humor, *Steel Magnolias* is a hilarious story of love, loss, and enduring friendship.

"*Steel Magnolias* is one of the most quotable plays and movies of all time," says Jay Coffman, Executive Artistic Director for the Spartanburg Little Theatre. "We had to add an extra Thursday night performance to accommodate the demand for tickets. Audiences are beyond excited to see these characters come to life on stage."

Steel Magnolias features Valerie Manatis Barnet as "Clairee", Teresa Hough as "Ouiser", Lori Guthrie as "Truvy", Candace Stimpson as "M'Lynn", Caroline Bosworth as "Annelle", and Christiana Reübert as "Shelby".

Tickets for *Steel Magnolias* can be purchased by calling the Chapman Cultural Center box office at (864) 542-2787 or by ordering online at www.chapmanculturalcenter.org. Tickets are \$25 for adults, \$24 for seniors and \$20 for students.

The Spartanburg Little Theatre's production of *Steel Magnolias* is made possible by a generous sponsorship from Spartanburg Family Dentistry.

Interim Hospice Annual Remembrance Service at First Baptist Greenville

This will be an interfaith, inclusive service of words and music to remember and celebrate the lives of patients and loved ones who have been lost over the last year.

"Remembering Those We Shall Never Forget" will be held Thursday, March 15, at 6:00 p.m. at Remembrance Gardens at Greenville First Baptist, 847 Cleveland Street in Greenville.

Please bring an item of your loved one for the memory table. Light refreshments will be served.

Register at <https://www.eventbrite.com/e/a-time-to-remember-tickets-43553599990> or email: Tonya.Taylor@interimcares.com
Call 864-627-7049.

Furman Education professor Paul L. Thomas co-edits new collection of essays

Greenville - Furman Department of Education professor Paul L. Thomas has co-edited a new collection of essays, *Critical Media Literacy and Fake News in Post-Truth America* (Brill/Sense).

The collection is co-edited by Christian Z. Goering, University of Arkansas.

Before joining the Furman faculty in 2002, Thomas taught high school English in rural South Carolina. He earned undergraduate, master's and doctoral degrees in education from the University of South Carolina.

Furman University Provost receives major award from research corporation

Greenville - Furman University Vice President for Academic Affairs and Provost George Shields is one of three professors from across the nation to be named a 2018 Cottrell Scholar TREE Award recipient.

The Transformational Research and Excellence in Education awards are presented by Research Corporation and recognize the "outstanding research and educational accomplishments" of the organization's Cottrell Scholars. Shields, who is also a professor of chemistry at Furman, was named a Cottrell Scholar in 1994 and is the first professor from a primarily undergraduate institution to receive the TREE Award.

The TREE Award consists of an unrestricted \$20,000 award sent to the awardee's institution on behalf of the recipient's educational and scholarly work. An additional \$5,000 award is provided to the recipient to support lectures and travel to other institutions to help broadly communicate innovative research and educational accomplishments.

Ballet Spartanburg receives prestigious arts award for the State of South Carolina

Ballet Spartanburg has been named as one of five recipients of the Elizabeth O'Neill Verner Governor's Award for the Arts for 2018. The award, which is the highest arts honor in the state, recognizes outstanding achievement and contributions to the arts in South Carolina.

"We are thrilled to be recognized for our dance and educational programming and services as an arts organization for the state of South Carolina," Ballet Spartanburg, Executive Director Teresa Hough said in a statement. "The Elizabeth O'Neill Verner Award validates the importance of the arts in our state and we are proud to receive this award as ambassadors of exemplary arts for not only Spartanburg for the state of South Carolina. We are very appreciative of the South Carolina Arts Commission and their dedication and commitment to the value of the arts and programming in our state."

Carlos Agudelo, Artistic Director, stated, "This is truly unexpected and at the same time an extremely rewarding honor. In my 27 years with this organization, we have always given, our outreach, our Center for Dance Education and our performance programs the same importance and efforts in order to grow, improve and reach every segment of our population, from the very young to our seniors to those with physical and mental challenges. So this award recognizes our mission and our desire to enrich lives through the art of dance."

Ballet Spartanburg retains the only resident Professional Company in the Upstate, instructs over 350 students and adults at the Center for Dance Educa-



Ballet Spartanburg has been named one of five recipients of the Elizabeth O'Neill Verner Governor's Award for the Arts for 2018.

tion and has an expansive outreach program in the community and beyond.

"We try very hard to accommodate new audience members in our outreach programs and our performances. We are constantly "thinking outside of the box" of new and relatable ways to offer ballet, whether it is classical or contemporary, on the stage or in our studio. We are preparing to tour a new contemporary repertoire for 2018/2019 and we are excited about all future possibilities for our organization to continue to grow," said Teresa Hough.

"Each recipient of these Verner Awards is an outstanding ambassador for our state and contributes greatly not just to the arts community, but the overall quality of life," S.C. Arts Commission chairman Henry Horowitz said in a news release. "Such dedication to the arts benefits South Carolina's people and, as we've just learned, adds to the arts' \$9.7 billion impact on our state's economic vitality."

"As the Arts Commission nears completion of its 50th anniversary celebration, we are honored to recognize organizations and individuals who live out the service, commitment and passion that

helped the arts here thrive throughout the last half century."

A diverse committee, appointed by the S.C. Arts Commission Board and drawn from members of the South Carolina community at large, reviews all nominations and, after a rigorous process, makes recommendations to the Board for the final approval after a series of panel meetings produces a recommendation for each category.

The 2018 Verner Awards are sponsored by Colonial Life. Awards will be presented May 2 in a morning ceremony at the State House. The S.C. Arts Foundation will honor the recipients afterward during a fundraising luncheon at the University of South Carolina Alumni Center in Columbia. South Carolina artists' work will be on sale to support the programs of the S.C. Arts Commission.

Luncheon tickets are \$50 per person and will be available for purchase by mid-March.

Headquartered in Columbia, the Arts Commission is funded by the state of South Carolina, by the federal government through the National Endowment for the Arts and other sources.

Chapman Cultural Center announces date for the 2018 Spartanburg Soaring! Festival

Chapman Cultural Center has set the date for its fifth annual Spartanburg Soaring! International Kite Festival presented by Greenville-Spartanburg International Airport. The fun happens on Saturday, April 21, 2018, from 11 am - 5 pm. This free and family-friendly festival has quickly become a much-anticipated event for people of all ages from all over region. Hundreds of kites fill the sky behind the Chapman Cultural Center in downtown Spartanburg, complemented by live street music and performances, food trucks, and a maker's market. During the course of the day, individuals and members of the Spartanburg Soaring

Kite Club float kites of every imaginable shape and size to the sky, from small kites to octopus-size kites made from the latest technology and advanced materials. It is a colorful and creative experience. The Spartanburg community has embraced the kite as a symbol of its creative, progressive, and playful spirit. Last year, the event attracted more than 3,500 participants from all over the region and this year will be even better.

"Every year we grow the Festival in terms of creativity and attendance," Jennifer Evins, President and CEO of Chapman Cultural Center, said. "It is part of our mission to increase community

vibrancy and civic engagement. Spartanburg Soaring is a beautiful showcase of what it means to live in Spartanburg. It acts as a symbol of our progressive mindset, our creativity, our curiosity, and our playful nature."

The rain date is scheduled for Sunday, April 22nd, 2018 from 1 pm - 5 pm. Chapman Cultural Center is now accepting the participation of artists and makers for the maker's market, volunteers, and business partners interested in sponsoring the festival.

For more information about this event, please call (864) 542-ARTS or visit the Festival's Facebook Event Page.

Knowing when to ask for help

From the American Counseling Association

For most of us, asking for help can often be difficult. Yes, asking for advice on planting your garden is easy. But for a serious issue, such as our mental health, we may find that we don't want to admit to the problems we're facing.

It's not hard to understand why we may be reluctant. Admitting that we're struggling or feeling overwhelmed is like we're admitting we're weak or inadequate. Most of us learned as children that it's important to be independent, strong and self-sufficient. That background makes it difficult to tell someone else that we're really not okay.

The result is that people often decide to just try and do the best they can by themselves. In some cases things might just turn out fine, though there are no guarantees. But going it alone could involve considerable amounts of stress and anxiety, and may even lead to bigger and more serious problems.

Another common option is to turn to family or friends. This can be a good idea if those we trust with our problems and fears are truly understanding and are able to offer meaningful support and help. Sometimes they can, but often times they just can't.

If you're facing a difficult time or situation, something that's causing depression, high stress and anxiety, and is making it difficult or impossible for you to enjoy life, it may be time to seek out professional help. Doing so can be a difficult choice, since it means asking for help from a stranger, and usually will involve a fee.

However, realize that a professional counselor is someone who has gone through extensive training and has many tools to help those feeling overwhelmed and unsure of how to go on. Despite the way it's often portrayed on TV, counseling is not something just for "crazy" people. Most counseling assists perfectly normal people who are simply facing issues and problems that are negatively affecting their lives.

Professional counselors specialize in numerous areas. Check with your local mental health association or visit the American Counseling Association website at www.counseling.org (click the "Find A Counselor" tab at the top) to locate professional counselors in a variety of specialties.

Asking for help is never a sign of weakness but rather of the strength to recognize when your problems are real and that you need help to do something about them.

Counseling Corner is provided by the American Counseling Association. Comments and questions to ACACorner@counseling.org

Around the Upstate

Community Calendar

MARCH 9 - 11
Oakbrook Preparatory School presents Beauty and the Beast - The Broadway Musical, at Twichell Auditorium at Converse College, March 9-7:00 pm, March 10 - 3:00 pm & 7:00 pm and March 11 - 3:00 pm. Order tickets online - www.converse.edu/boxoffice or call/visit the Box Office: 864-596-9724, 580 East Main Street in Spartanburg.

MARCH 10
HomeSpun Bluegrass, 126 W Cherokee St in Chesnee, 7 - 9 p.m. Cost is \$5. Bands from the SC and NC area perform traditional bluegrass favorites along with southern gospel that is sure to please everyone. Good family entertainment in a relaxed atmosphere with no alcohol and smoking is outside only.

MARCH 11
Chapman Cultural Center is open every Sunday afternoon, 1 - 5 p.m. Several museums are open with free admission. In addition, one or more local musicians will perform a free mini-concert at no charge 2 - 4 p.m. (864) 542-ARTS.

MARCH 13
Trivia Night: TNT with Kolby G, 7:31 - 9:30 p.m. at Ciclops Cyderi & Brewery, 197 E. St. John St.

MARCH 14
Celtic Woman stops at Spartanburg Memorial Auditorium at 7 p.m., celebrating Ireland's rich musical and cultural heritage. Tickets are \$99/59/39. Call 1-800-745-3000.



1. Is the book of Habakkuk in the Old or New Testament or neither?
2. From Nehemiah 10, what's the most common starting letter of the 87 names listing priests, Levites, chiefs and fathers? C, B, T, H
3. Which book may be summarized, "The end of the world as we know it."? Proverbs, Ephesians, 2 Peter, Revelation
4. How did Jesus enter Jerusalem during the "Triumphal Entry"? On foot, Carried by slaves, On donkey, In golden chariot
5. Which prophet foretold the ministry of John the Baptist? Levi, Isaiah, Aaron, Mordecai
6. From 1 Chronicles 20, Elhanan slew Goliath's ...? Father, Brother, Mule, Oxen

ANSWERS: 1) Old; 2) H; 3) Revelation; 4) On donkey; 5) Isaiah; 6) Brother

Comments? More Trivia? Visit www.TriviaGuy.com

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Super Crossword

Answers

ABE	RABBI	LADIES	TAMED
FORGERIES	LIQTO	ALICE	
ROBERT	KATIE	DOWNIE	
REAM	ONSISTERS	INCOG	
TOWN	OTO	FEI	MA
ALAS	ONAS	BEI	FEI
OLLED	THE	PIA	CH
SATVA	ROU	IC	ALS
AS	TO	AT	THE
DO	NT	TO	UCH
ALERO	ONS	PIE	CAIR
SLE	DOG	G	APAC
HIT	IDE	RAI	SIN
AKOV	DIS	TINI	US
PE	TAD	GYM	PIAS
BO	UIS	TER	MIN
EM	ILIT	ANO	CIAM
RA	VEN	RO	GEN
GHE	INT	LE	AR
SI	ANTO	ANTIS	SATI

Tindall Corporation CEO awarded Industry Leadership Award

Tindall Corporation's President and CEO, Greg Force, was awarded the 2017 Mario J. Bertolini Leadership & Innovation Award at the 2018 PCI Convention in Denver, Colorado.

The Mario J. Bertolini Leadership & Innovation Award recognizes individuals who exhibited the personal and professional traits exemplified by Mr. Bertolini while serving in senior management positions of PCI Producer Member firms. Force is the third recipient of this award which honors the renowned engineer and PCI leader, Mario Bertolini, who passed away in 2014.

"I am extremely humbled by this recognition from PCI, an organization



Greg Force, Tindall Corporation President/CEO

of which I've been proud to be a part for over 30 years," said Force. "Mario Bertolini is an icon in the

precast industry and I am proud to honor his legacy."

Force joined Tindall in 1988. He is a registered professional engineer in ten states and has held positions in engineering, sales and project management. He has been actively involved in the Precast/Prestressed Concrete Institute (PCI) for over three decades, serving as Chairman of the Board in 2012, Chairman of the Design Handbook Committee for the 7th Edition, Chairman of the Parking Structures Committee and a member of the Technical Activities Council. He remains active on several technical committees, and he is presently the Chairman of the Research and Development Council, as well as a member of the

PCI Foundation Board of Trustees. He is a Fellow of PCI and was named a Titan of the Industry by PCI in 2014.

"Throughout his career, Greg has shown exceptional leadership, integrity and dedication to the advancement of the precast concrete industry," said PCI President and CEO, Bob Bissler, P.E. of Force. "He is known for mentoring and encouraging young engineers in their professional and personal development. Recognizing that innovation is essential for the advancement of the precast concrete industry, he challenges both himself and his coworkers to innovate and provide outstanding products and services to every client."

KapStone Paper and Packaging Corporation investing in Cherokee County facility

Columbia - KapStone Paper and Packaging Corporation, a leading North American producer of unbleached kraft paper and packaging products, is investing \$6 million in new equipment at its Cherokee County facility.

Formed in 2005 and headquartered in Northbrook, Ill., KapStone's paper mills produce a wide spectrum of kraft and recycled products. The mills' product portfolio contains several top brands, including Kraftpak®, DuraSorb®, TEA-Kraft® and FibreShield®, as well as extensible kraft paper grades and high-performance, lightweight linerboard. Employing approximately 6,000 workers, KapStone also provides industrial and retail corrugated packaging solutions

for a variety of customers.

"KapStone team members are proud to contribute to the success of our customers and communities. Investing in our industry-leading recycled paper mill in Cowpens demonstrates our continued commitment to Cherokee County. Working together with our state and local partners, we are excited about the future of our business and the benefits it can provide for all of our stakeholders," stated Steven Leahy, vice president of Mill Operations at KapStone's Cowpens Paper Mill.

South Carolina Governor Henry McMaster added, "We are proud to celebrate KapStone Paper and Packaging's latest investment in South Carolina and our people. Anytime a

company is able to grow and expand its operations, especially in one of our rural counties, it proves what we already know - that we have one of the most competitive business environments in the world."

"KapStone Paper and Packaging Corporation has a long history of success in South Carolina, and we congratulate them on this latest expansion. Today's announcement is further proof that all of our hard work in creating a pro-

business climate in our state continues to pay off," added Secretary of Commerce Bobby Hitt.

"The latest expansion by KapStone Paper and Packaging Corporation is a perfect example of how Cherokee County is not only a great place to live, but a great place to do business. We look forward to helping them continue to grow," added Cherokee County Council Chairman Tim Spencer.

Opened in 1992, KapStone's Cowpens facil-

ity includes a state-of-the-art paper mill that produces recycled linerboard and medium. This investment will allow the company to install a new hydraulic dilution control headbox, as well as a new bottom-ply chain conveyor, increasing the speed, efficiency and quality of its products.

For more information on KapStone Paper and Packaging Corporation, visit www.kapstonepaper.com.

DÉCADA
CLASSIC AND CONTEMPORARY BALLET

ballet spartanburg

Fri., March 23 8 PM
Sat., March 24 8 PM

Student \$15 | Senior \$20 | Adult \$25

Chapman Cultural Center
Tickets: 542-2787
ChapmanCulturalCenter.org

The Spartan Weekly News, Inc.

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Super Crossword **OH GEE!**

ACROSS

- 1 Pres. Lincoln
- 4 Bar mitzvah officiant
- 9 Placed a burden on
- 14 Broke, as a horse
- 19 Fake signatures
- 21 Billy Joel's "Extremes"
- 22 Rock's Cooper
- 23 "The Golden Girls" co-star being a rascal?
- 25 Bit of gossip
- 26 Conical-bore woodwind
- 27 Winslet and Middleton
- 28 Source of great wealth
- 30 Make juice of
- 33 Mean beasts wearing disguises?
- 35 Burg
- 38 Life story, for short
- 40 Suffix with cloth or cash
- 41 With 45-Down, place for paternity testing
- 42 "Sad to say ..."
- 43 Record of the years
- 47 Serpentine fish
- 49 Unearthly
- 53 Stared creepily at a group of wolves?
- 56 Long deli sandwiches
- 58 Pretend to be
- 59 Mythical man-horse
- 60 Red chapter heading, e.g.
- 62 Ancient French region
- 64 In re
- 67 Minerva, to the Greeks
- 69 Comes out on top
- 70 "Make no edits to those script lines!?"
- 76 Sleek, informally
- 77 How some freelancers work
- 78 Bellyache
- 79 Iditarod Trail animal
- 81 Very spirited
- 84 Swiftly
- 89 Brand of fruit drinks
- 90 Notion, to Luc
- 92 Heavy work shoe filled with currants?
- 95 Comedian Smirnoff
- 97 Apr. clock setting
- 99 Countdown expression
- 100 Mania money
- 101 Lively spirit
- 103 Smidge
- 105 Phys ed class
- 106 Epochs
- 107 Airport area
- 114 Stair unit
- 116 Mexican revolutionary
- 117 Oasis beast
- 119 Capital of the Beaver State
- 123 Poe's bird
- 124 Evil poet
- 128 Belgian port
- 129 Wise up
- 130 Aggressively defiant
- 131 - Domingo
- 132 Unable to relax
- 133 Composer Erik
- 134 "Prob'ly not"
- 4 Actress Witherspoon
- 5 Equip for war
- 6 Razor brand
- 7 Radio host Glenn
- 8 Koran's faith
- 9 Tablecloth material
- 10 Tennis great Andre
- 11 Shout on "The Simpsons"
- 12 Curio display stands
- 13 Giving type
- 14 Late state
- 15 Female grads
- 16 Copy closely
- 17 Low-cost, in-product names
- 18 Freedom from govt. control
- 20 Brown-and-white cow
- 24 Get from -B
- 29 '60s drug
- 32 Ho Chi -
- 34 Golf peg
- 35 New Mexico ski spot
- 36 Bond girl Kurylenko
- 37 Drawer Disney
- 39 Burdensome
- 44 Storekeeper on "The Simpsons"
- 45 See
- 41-Across
- 46 Try to harm with claws
- 48 Angola's capital
- 50 Cosine, e.g.
- 51 Cake topper
- 52 JFK guesses
- 54 "Blast!"
- 55 Kin's partner
- 57 Linda of "The Exorcist"
- 61 "-ching!"
- 63 Hole tool
- 65 Stomached
- 66 Used a tool to grab, as an ice block
- 68 Engraved work of art
- 70 Screenwriter Ephron
- 71 Big name in vacuums
- 72 "Yes" signal
- 73 EMS skill
- 74 Tune in to
- 75 On - with (similar to)
- 76 Pasty
- 80 Enters headfirst, as a pool
- 82 Cup edge
- 83 "So far - know ..."
- 85 Any of six pontiffs
- 86 Wine ripener, e.g.
- 87 House, south of the border
- 88 Son of Seth
- 91 Female hormone
- 93 Van -, Calif.
- 94 Cellar, in apt. ads
- 96 Luxurious
- 98 Piper's cap
- 102 School gp.
- 104 Kitchen choppers
- 107 Arctic floaters
- 108 Large city in Nebraska
- 109 Established fact
- 110 -Gay (warplane)
- 111 Tot watcher
- 112 Latin "I love"
- 113 Some jobs
- 115 Suffix similar to -like
- 118 Pre-euro Italian money
- 120 Security claim
- 121 Italian peak
- 122 Tall tale
- 125 "Gimme -!" (rude demand)
- 126 Granola bit
- 127 Here, in Lyon

New precision device could advance low-dose radiation cancer research

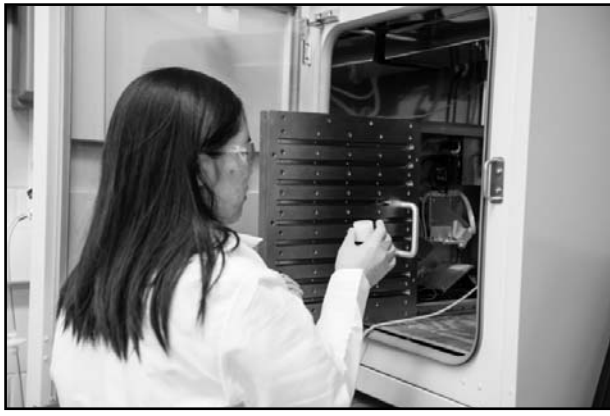
By Clinton Colmenares,
Clemson University
Relations

Clemson - Radiation is a powerful weapon against some types of cancer, but using the therapy is still more like a shotgun approach than a surgical strike, shooting a tumor with large doses of broad-spectrum X-rays that damage healthy tissue and cause side effects.

In a study published in the journal PLOS ONE, a team of Clemson University bioengineering and physics students and faculty describe an irradiation fluorescence system they developed that could accelerate research in delivering very specific types of radiation in controlled doses. They also showed that low doses of specific, controlled radiation are safe for healthy cells.

Sources of radiation are everywhere — sunlight, trace amounts of radioactive elements in the soil, medical imaging and outer space, where radiation is a concern for astronauts. At its most basic, radiation is energy released in the form of subatomic particles. Each atom has its own wavelength and energy; collectively, they comprise a spectrum of radiation.

If radiation were a rainbow of colors, the Clemson team was able to use and measure a very specific shade of the rainbow at a specific low dose consistently. Previous radiation research has lacked detailed information, mak-



Katelyn Truong, a senior bioengineering major, helped design a device that changes X-ray delivery from a shotgun approach to a surgical strike. Truong authored a journal article explaining the device and its potential to propel research in cancer radiation.

Image Credit: Clemson University Relations

ing the science difficult to replicate and verify.

"In general, researchers haven't been too worried about the exact energies, wavelengths and dosages of radiation," said Delphine Dean, an associate professor of bioengineering at Clemson and the senior author of the paper.

Elements absorb specific wavelengths of energy and release others, a process called fluorescence. In their study, the Clemson researchers bounced X-rays off a small plate of iron. The iron absorbed some wavelengths and emitted others onto a dish of fibroblast cells from a well-established mouse line provided by the National Institutes of Health.

For 24 hours after being irradiated, the cells grew slower than cells that didn't receive radiation. By the third day, however, the

irradiated cells were growing at a much faster rate than the non-irradiated cells. The researchers suggest cells slowed growth as a protective measure to minimize DNA damage, then sped up the cell cycle to overcome the damage. By the fifth day, both irradiated and non-irradiated cells were growing at the same rate.

Previous research has shown that cancer cells have a difficult time repairing themselves after low doses of radiation. But the pause and rapid rebound by the healthy cells in the Clemson project was surprising and encouraging, Dean said.

"When we first started working on this, I actually made the students redo the experiments several times because I thought that it didn't make sense that the cells would start to proliferate faster after irradiation."

But it was so nicely repeatable that we knew it was really something there. That's a lot to do with our system. We know exactly the dose, dose rate and energy every time we do the experiment so there's no question that what we were seeing was real," she said.

What made the Clemson study different from others started with a collaboration between bioengineering and physics students.

"I am impressed by how far our students were able to push this research considering that small overlap of the two fields. On the other hand, this makes our collaboration exciting and the results unique and valuable for the scientific community," said Endre Takacs, associate professor of atomic and medical

physics in Clemson's College of Science.

Katelyn Truong, a senior at Clemson and first author on the paper, said the collaboration between bioengineering and physics was "fundamental" in developing the low-dose X-ray source and performing analytical tests.

"The physics students contributed tremendously by really delving into calculations behind the X-ray spectra analysis. Specifying precise doses and keeping these doses consistent for the cells would have been impossible without their help," Truong said.

Together, the students determined that using specific, well-characterized radiation was essential. Then, they overcame the challenges of creating a

device that can fit within an incubator about the size of a mini-fridge.

"Everything had to fit inside the box that was heated and humid, which is not the way precision physics studies are typically done. It took a bunch of clever reengineering of our first prototype irradiator to do that. The physics team machined the parts and everything is custom so that it can fit and still irradiate the cell cultures," Takacs said.

"In order to calculate the amount of radiation reaching the cells, the elementary physical processes of the interaction of x-rays with different materials needed to be considered. This information went into the design of the fluorescent setup, the container holding the cell and the built-in monitoring equipment," Takacs said.

"We're really hoping this (PLOS ONE) paper gets other research groups to set up similar irradiation systems where the dose, energy, dose rate, etc., are well-characterized. This will help the field so that it will be easier to compare results between groups," Dean said.

Suzanne Bradley, Bryana Baginski, Joseph Wilson, Leon Zheng and R. Kevin Wilson also were authors of the paper.

The study was funded through the Clemson Creative Inquiry student research program and an NSF CAREER Award to Dean.



A transparent Mylar film stretched over a small plastic cup was key to delivering precise radiation to cells.

Image Credit: Clemson University Relations

South Carolina Office of Innovation launches 3Phase Initiative aimed at helping research-based firms acquire grant awards

Columbia - The Office of Innovation at the S.C. Department of Commerce recently announced the launch of 3Phase, a new resource aimed at assisting research-based companies in South Carolina successfully acquire Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards. A first of its kind, 3Phase will provide training and workshops throughout the state on the federal SBIR and STTR programs, while managing the application process for a portfolio of companies, both at no cost to participants.

The SBIR and STTR programs require eligible governmental agencies to set aside a percentage of their budgets toward startups in the creation of innovative, disruptive technologies, with an aim of getting discoveries out of the lab and into the market. Different from other investment opportunities, the SBIR and STTR programs fund early stage research and development and are designed to provide equity-free funding. These investments build a strong national economy by stimulating technological innovation in the private sector; strengthening the role of small business in meeting federal research and development needs; and increasing the commercial application of federally-supported research results.

"The creation of 3Phase is an example of what's possible when collaboration collides with leadership," said Secretary of Com-

merce Bobby Hitt. "Allowing for the increased commercialization of intellectual property in South Carolina, this new initiative perfectly represents the state's ongoing mission to promote the growth of our knowledge economy."

Upon embarking on that mission in the fall of 2013, S.C. Commerce launched the state's first Office of Innovation. Since that time, the office has successfully empowered 24 entrepreneurship programs and educated more than 6,000 South Carolinians in technology curriculum.

Last year, to build on this success and solicit the insights of both public and private stakeholders, the office established the Council for Innovation Initiatives. As the first recommendation from the council, 3Phase aims to be a centralized resource with expertise in specialized funding that not only raises the success rate of awards within the Palmetto State, but also attracts outside investment.

"These federal funds provide critical risk capital for new and often unproven ideas that are usually too early to attract prospective investors," shared Matt Dunbar, founder and managing director of VentureSouth and Council for Innovation Initiatives member. Dunbar continued, "SBIR awards help advance the technical and commercial viability of early stage ventures, thereby reducing risks to levels that are allowable for angel or other venture firms to invest for continued devel-

opment." Details on the workshops

and acceptance into the 3Phase portfolio are to be

announced in the coming weeks. For more informa-

tion on 3Phase, visit www.3phasesc.com.

14th ANNUAL LAND CRUISE

Set Sail with Mobile Meals to
la ville de l'amour

PARIS

FRIDAY, MARCH 16, 2018 7-11 P.M.

SPARTANBURG MEMORIAL AUDITORIUM
385 NORTH CHURCH STREET, SPARTANBURG

Cruise Director, Tom Crabtree, WSPA-TV/7 News

TICKETS: \$60 per person
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3 home projects that offer a great return on investment

(StatePoint) The warmer months present an excellent opportunity to get outdoors and spruce up your home's exterior. But if you have limited time and resources, it's important to prioritize the focus of your efforts.

For guidance, consider Remodeling Magazine's 2018 Cost vs. Value Report, which shows that not all remodeling projects are equal.

Here are three spring renovation ideas that will give your property not only a facelift, but offer a great return on investment to boot.

Garage Door

National data from the 2018 Cost vs. Value Report shows that the project that delivers the highest return on investment is a new upscale garage door. This is a good choice for those looking for better noise control, greater security, curb appeal and conven-



ience.

Newer offerings relying on smart home technology can synch with your mobile device to offer conveniences like voice control and notifications when you've left the garage door open.

Manufactured Stone Veneer

In the number two slot for sound renovation investments, according to the same report, is manufactured stone veneer, which is a great way to add visual interest to your home exterior (or an interi-

or room, for that matter).

Be sure to select products that mimic the texture and color of natural stone, such as the choices from ProVia, which are molded and cast to look like stone harvested from various U.S. geographic regions and are offered in a variety

of style and color palettes.

The manufacturer offers resources that help make it easy to select and install the best choice for your home or get the look you've always wanted. Their visualizer tool, found at ProVia.com, allows you to upload a

photo of your home to see how the stone will look on your exterior.

Entry Door Replacement

Your home's entry door is one of the first things prospective home buyers will notice, so it's no surprise that upgrading yours could be a wise investment. The Cost vs. Value report named a new steel door as the third highest cost recouped. However, steel or fiberglass are both good choices for materials when it comes to functionality, durability, energy efficiency, security and versatility in style.

For more home renovation ideas and resources, visit ProVia.com.

When giving your home a facelift, make it count. Consider those upgrades and renovations that don't just look good, but also are proven to increase the resale value of your home.

When local businesses thrive, so does the community

By Richard Eckstrom,
S.C. Comptroller

If you've got shopping to do, the national "big-box" and ecommerce retailers can seem like an appealing option. They're often located close to the Interstate. With huge advertising budgets, they bombard us with tantalizing deals and "doorbuster specials." And in the Internet era it's easier than ever to make purchases with a few clicks on a laptop or smartphone.

But whatever the advantages, we don't always realize the hidden costs of online and big box stores -- among them the squeeze they put on our local, independently-owned businesses.

There's much to be said for investing our dollars in local businesses. Foremost, it boosts your hometown economy and keeps members of your community in jobs. Money spent at local shops and restaurants tends to remain in local circulation. A recent study estimated that 48 cents of every dollar spent at a local business stays within that community, compared to just 14 cents spent at big box giants.

Local businesses strengthen your community. They sponsor little league teams, partner with local schools and participate in community events. One recent report concluded that nonprofits and charities receive more than twice as much support from small and local businesses as they do from large chains.

Through advertisements, local businesses support the community newspaper you're reading now, helping to bring your community a vital source of local information. Read the advertisements to get an idea of local businesses conveniently located near you.

Local businesses pay taxes. This is important because a broader revenue base in your town or county generally means a lower financial burden on ordinary taxpayers. (By contrast, a lot of the big chain stores negotiate tax exemptions from local governments... exemptions which ultimately increase the tax burden on the rest of us.)

Local merchants value your business. With much smaller profit margins and less room for error, they tend to appreciate each customer -- and to show it by being friendlier and offering better customer service than the

big-box chains.

The success of local businesses is linked to the well-being of the local community. Even if it's not always feasible to do all of our spending locally, we would benefit the community by making an effort to spread our spending around and shopping local whenever possible.

Small, local, independently-owned companies are run by people working to build

their own piece of the American dream. Some have invested their life savings into their business. But many face uncertainty about the future - especially now, as online giants grapple to dominate the retail market and try to elbow small competitors out of the way.

Even a modest shift in our individual spending habits can help balance the scale for the "little guys." With that in mind, here are a few

additional suggestions:

1. If you dine out frequently, make an extra effort to visit smaller, family-run establishments. It's a proven fact that some of the best-tasting food can be found at these "mom-and-pop" restaurants.

One of my favorite places to eat is a chicken restaurant called Bernie's. I know the cooks and cashiers by name, and they know me. And the food is delicious.

2. Shopping the "little guys" can be a great way to network. If you're trying to drum up a little business of your own, make it a point to patronize locally-owned businesses. Introduce yourself to the owner or manager when you shop. Leave a business card if you have one. They'll often remember and reciprocate if they can.


3. If you have a good experience with a local business, tell your friends and

neighbors. Share it on social media. An endorsement from a personal friend or acquaintance goes a long way.

Now more than ever, local businesses need your support. They work hard for it and deserve it. And your community -- and your own quality of life -- will benefit from it.

Richard Eckstrom is a CPA and the state's Comptroller.

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