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Annual Report, 2020-2021

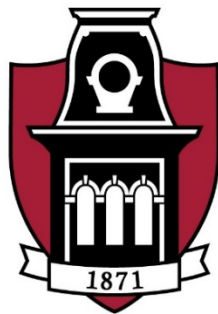
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UNIVERSITY OF
ARKANSAS

Research & Innovation

**Annual Report
2020 – 2021**



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Office of the Vice Chancellor for Research and Innovation

The vice chancellor's office played a significant role in planning safety protocol for on-campus researchers during the global pandemic. In conjunction with the university's COVID-19 Response Team Research Subcommittee, the vice chancellor edited and approved the official [Research Continuity plan](#), which provided guidelines for in-person research lab activities. The four-phase model allowed for vital, essential, and critical research activities to continue in a safe manner, keeping the health of participants and the community as a priority.

Soon after the start of Fiscal Year 2021 (FY 2021), Daniel Sui, then vice chancellor, accepted a position at Virginia Tech University. In November 2020, John English assumed the position of Vice Chancellor for Research and Innovation at the University of Arkansas (U of A).

Upon his appointment, Vice Chancellor English initiated a restructuring effort to better meet the needs of the research community. .” To execute his vision of transforming the department into a “top-notch service organization,” Vice Chancellor English appointed Heather Lyn Nachtmann as senior associate vice chancellor. Her primary duty in this role was to give an analysis of what is expected of a modern research office and develop a structure for the department focused on efficiency and efficacy.

Continuing the restructuring effort, two new positions were added to the vice chancellor's office. Mike Bieker, director of the University of Arkansas Press, was appointed as an assistant vice chancellor and director of operations and finance. He stepped into this role in April 2021 and retains his role in directing the Press. Additionally, a search was conducted for a human resources and operations manager to serve in the vice chancellor's office. The role was filled at the start of FY 2022.

One of the largest single private grants given to a university for advancing research and economic development allows for the establishment of the Institute for Integrative and Innovative Research (I³R). The \$194.7 million grant from the Walton Family Charitable Support Foundation will fund multiple projects to grow the university's cross-disciplinary research capability, expand the scope of discoveries made by university researchers, and increase the velocity with which discoveries are transferred to the marketplace where they can improve or save lives.

I³R is envisioned as a unique approach to research that will distinguish the U of A by creating a flexible, state-of-the-art, collaborative framework designed to facilitate the integration of research across five overlapping clusters of innovation. They are as follows:

1. Food + Technology

2. Data Science
3. Materials Science & Engineering
4. Bioscience & Bioengineering Research in Metabolism
5. Integrative Systems Neuroscience

The grant provides funding to support the establishment of a new research building, hiring of an executive director and five center directors (one for each of the clusters of innovation), twenty faculty members to fit in a complimentary fashion within the clusters of innovation, and financial support for new staff, maintenance, and equipment. It is truly a transformational gift.

The new research building for I³R is being designed by the architectural team of Hufft + HGA. A design committee from across five colleges is working with the design team to shape the facilities and research tools incorporated into the new structure. The largest academic building project in our history, it will cost approximately \$100,000,000 and have over 100,000 square feet of state-of-the-art research and collaboration space. In addition to research space, this new facility will serve as catalyst for private sector engagement in research and commercialization. The building will be located at the intersection of Duncan Avenue and Dickson Street, just across Dickson from the White Engineering Hall. The building will be a striking presence on campus and will underscore our commitment to innovative and collaborative research.

In the late fall of 2020, the university contracted with one of the leading executive search firms in the nation to identify the founding director of the Institute. A search committee—co-chaired by the vice chancellor of research and innovation (VCRI) and the vice chancellor of economic development (VCED)—composed of the five Chancellor Fellows (assigned to the five clusters of innovation), industry leaders, research staff at the U of A and other scholars supported the search firm in the efforts.

In the fall of 2021, we will commence with the search of center directors. Vice Chancellor English is working with the academic deans to design search committees such that campus interests and practices are organic to the searches. We hope to announce three of the directors in the spring of 2022. In the fall of 2022, searches for the other two center directors will commence along with a multiyear launch of hiring twenty new faculty members and scores of new staff members all to be part of the Institute.

Office of Sponsored Programs

FY 2021 welcomed the following new staff members to the Office of Sponsored Programs (OSP):

- Amy Pickering joined in July 2020 as a contract specialist on the Award Management team.
- Marlena Teeuwen joined in July 2020 and serves as an administrative analyst and assistant to the OSP director.

- Joshua Gilgen joined in July 2020 as a post-award specialist.
- Kim O’Leary joined in October 2020 as a grant specialist on the Pre-Award team.
- Kathy Kirk joined in October 2020 as a grant specialist on the Pre-Award team.
- BreeAnna Kilmer joined in November 2020 as a post-award specialist.
- Katie Tracy accepted the position of Research Accounting Director. She began this role in November 2020 and has successfully led her team in the ongoing processes of Workday implementation.
- Meghan Churchill first joined in January 2021 as a post-award specialist and accepted a full-time appointment in April 2021 on the Research Accounting team.
- Sujatha Suresh Kumar joined in April 2021 as a post-award support specialist on the Research Accounting team.
- Jefferie Renegar joined in April 2021 as an award specialist on the Award Management team.

A national search continued throughout FY 2021 for an assistant vice chancellor, director of OSP. During this time, Bob Beitle, associate vice chancellor, assumed the responsibilities of directing OSP. The search provided a qualified candidate who officially stepped into the role at the beginning of FY 2022.

Office of Scholarly Communications

[ScholarWorks@UARK](https://scholarworks@uark.edu), the University of Arkansas's digital repository, allows web visitors everywhere to freely access the research, scholarship, and creative activity of the Fayetteville campus community. The repository is managed by the Office of Scholarly Communications, and it was jointly supported by the University Libraries and the Division of Research and Innovation. Since July 2021, the University Libraries has been the sole sponsor.

In FY 2021, the repository experienced heavy usage: 1,252,068 file downloads and 197,255 metadata views. Web visitors came from 225 countries (primarily in the English-speaking world) and from 24,813 institutions (45% of which were educational and 45% were commercial). As of June 30, 2021, the repository's feature collections included open textbooks, materials from U of A research centers, and journals, as well as undergraduate theses, concert recordings, graduate theses and dissertations, and a directory of patents granted to U of A researchers.

Office of Research Integrity and Compliance

There were two staff departures during FY 2021. The Export Control Officer (ECO) departed in March and a compliance analyst retired in June. A search is currently underway to fill the ECO position; the compliance analyst position will not be filled. The duties of that position have been distributed to others in the compliance office and in the Division. The office was renamed Research Integrity and Compliance.

There were three incidents during this period involving animal welfare that were reported to the Office of Laboratory Animal Welfare (OLAW). Programmatic documents including standard operating procedures for animal care compliance were developed and implemented. Significant progress was made toward completion of the institutional animal care and use Program Description which will be submitted to the Association for Assessment and Accreditation of Laboratory Animal

Care (AAALAC) in FY 2022 as part of the accreditation application process. There were three incidents involving noncompliance in the human subjects research program. All three were considered not to be serious or ongoing, and all three incidents were resolved to the satisfaction of both the Institutional Review Board (IRB) and the researchers involved. There were membership changes on the IRB and on the Institutional Animal Care and Use Committee (IACUC); there were no membership changes on the Institutional Biosafety Committee (IBC).

The university policy on Conflict of Interest and/or Commitment was revised and approved by the Chancellor's Executive Committee, along with updated forms for requesting approval for outside employment and for disclosing and managing potential conflicts. An online, InfoReady-based submission process is currently under development and is expected to roll out campus-wide during the fall semester.

One incident of research misconduct was brought up for discussion. This incident was addressed in a formal allegation made to the Research Integrity Officer (RIO) after the reporting period closed.

Animal Care and Use

The annual report was submitted to the Office of Laboratory Animal Welfare (OLAW) in October 2020, covering the period from January 1, 2020, to September 30, 2020. The reporting period for all future annual reports will be from October 1 to September 30, with the report due to OLAW on December 1. OLAW was notified in writing that there had been a change in the Institutional Official effective November 1, 2020.

Three incidents involving animal welfare were reported to OLAW during this period; two of these occurred in February 2021 and one in May 2021. The reports described the incidents and corrective actions taken. OLAW indicated satisfaction with the university's response in all cases and that no further investigation or action by OLAW was needed.

The university's registration with the United States Department of Agriculture (USDA) Animal Plant and Health Inspection Service (APHIS) was cancelled on October 19, 2019, because no work with USDA-covered species had been conducted in over a year, nor was any planned for the near future. The reporting period for FY 2020 was October 1, 2019, through September 30, 2020. An annual report was filed with APHIS for FY 2020, covering the period from October 1, 2019, through October 19, 2019. No activity involving USDA-covered species was reported.

Concurrently, APHIS was also notified of the change in the Institutional Official.

The university will reapply for registration should there be an interest in research involving USDA-covered species in the future (*e.g.*, hamsters, rabbits, guinea pigs, etc.) Protocols involving USDA-covered agricultural animals are currently reviewed by the U of A Division of Agriculture IACUC.

Semiannual Inspections and Program Reviews

Semiannual inspections and program reviews were conducted in October and November of 2020 and in April and May of 2021. Semiannual reports signed by the voting members of the IACUC were submitted to the Institutional Official on October 13, 2020, and May 21, 2021.

Other Items

A new member representing the university libraries was appointed to the IACUC in January 2021. Standard Operating Procedures (SOPs) covering protocol review; recordkeeping; and post-approval monitoring were developed, reviewed, and approved by the IACUC, and implemented during the reporting period. A guidance document titled *Veterinary Verification and Consultation Guidelines* was developed and implemented.

Compliance staff and animal care staff continued to develop the Program Description which will be submitted as part of the application process for program accreditation by AAALAC. AAALAC accreditation is considered the “gold standard” for university animal care and use programs. That application is expected to be made early in FY 2022.

Institutional Animal Care and Use Committee Research Protocol Activity	
<i>New Protocols</i>	<i>Type of Review</i>
33	Full Committee
1	Designated Member Review
Total New Protocols: 34	
<i>Modification Requests</i>	<i>Type of Review</i>
13	Full Committee
4	Designated Member Review
6	Veterinary Verification and Consultation
58	Administrative
Total Protocol Modifications: 81	

Biological Safety

The Institutional Biosafety Committee (IBC) registration with the NIH Office of Science Policy was renewed on 2/23/2021. The next annual update is due on 3/18/2022. There were no changes in IBC membership during the reporting period.

Institutional Biological Safety Research Protocol Activity	
29	New Protocols
8	Protocol Renewals
21	Protocol Modifications

Export Controls and Sanctions Compliance

The university's registration with the Directorate of Defense Trade Control was renewed, maintaining the university's eligibility for defense contracts involving research and development. The list of institutional officials, including the Senior Officer, was updated to reflect changes in leadership that occurred during the fiscal year.

A guidance document on export controls was prepared for the Office of Sponsored Programs, to strengthen knowledge on how export control regulations affect sponsored research projects. Export Control Officer (ECO) approval was discussed for international travel requests. The Technology Control Plan template was updated to include review and approval by the ECO as well as by the Chief Information Security Officer.

The university signed a multi-institutional contract with Descartes, the vendor through which the university subscribes to Visual Compliance, a screening tool for export considerations. Under the new contract, the university has a total of ten "seats" for conducting screenings, two of which are assigned to the Division of Agriculture. Prior to this contract, the university had a total of five seats. Seats are assigned to appropriate stakeholders so they may conduct routine screenings. Screenings that result in any flags will be forwarded to the ECO for review and adjudication.

Approximately 613 reviews were conducted for export controls compliance. These included international agreements; visas; international remote work assignments; project sponsors; proposals; international travel and visitors; and prospective collaborative efforts.

Ten training sessions were conducted throughout the year and included the following:

- Export Controls for Technology Control Plans (4 sessions)
- Export Controls through the Employee Development Program (4 sessions)
- Export Controls Guidelines for Sponsored Programs (1 session)
- AEDC ExporTech Control Training (1 session)

The ECO position, renamed from Export Control Coordinator, is vacant due to a departure in March 2021. A search is currently in progress and is expected to be filled early in FY 2022.

Human Subjects Research

The Institutional Review Board (IRB) met eight times in FY 2021 and reviewed 13 new protocols, four resubmissions of previously deferred protocols, one amendment, and 11 renewals, three of which included amendments. Most new protocols qualified for an exemption and did not require review by either the full committee or through the expedited process.

Two new members were appointed to the IRB to fill vacancies left by the departure of the graduate student representative and the representative from the College of Education and Health Professions (COEHP).

Three trainings were conducted on IRB and ethics for the following groups: a Human-Centered Design class; an Honors Research preparatory session; and a Research Methods class. Two trainings were conducted for MAT students on how to submit a protocol through Streamlyne.

There were no reportable adverse events during this period. There were no instances of serious or recurring noncompliance; however, there were three incidents of less critical noncompliance that were reviewed by the IRB (either the full committee or an *ad hoc* subcommittee). These are as follows:

1. An investigator continued to collect data from research participants after the protocol’s approval expiration date. This matter was reviewed by the full IRB. The IRB determined that any data collected after the expiration date could not be used and would have to be destroyed.

2. An investigator enrolled more research participants than had been approved by the IRB. This protocol was being used as a screening tool for another study, and the researcher had not yet enrolled enough participants for this second study. A subcommittee of the IRB determined that the researcher was not aware that he had exceeded the approved participant limit. Enrollment in the second study could provide benefits to participants, so data collected from participants who exceeded the approved number in the screening study were not recommended for destruction. The subcommittee recommended that 1) the screening study be closed; 2) the second study be amended to include the screening procedures; and 3) the number of participants on the second study be increased.

3. A study participant made a complaint that consent procedures were not being followed and that test results from a study procedure, which were provided to participants, were causing confusion and anxiety for them. Upon review, a subcommittee of the IRB found that the full committee had required the investigator to provide test results to participants, even though the researcher had not originally intended to do so. The subcommittee recommended that the protocol be amended to remove this requirement (*i.e.*, test results would no longer be given to participants) and that the consent procedures would be appropriately amended. Enrolled participants would be required to re-consent under the amended protocol before proceeding. Further, all study personnel were to be retrained on consent procedures to ensure participants fully understood the purposes, risks, and benefits of the study.

Researchers were advised of and agreed to the recommendations in each instance.

Institutional Review Board Research Protocol Activity	
<i>New Protocols</i>	<i>Type of Review</i>
352	Exempt
177	Expedited
13	Full Board

40	Administrative – determined not to be human subjects research
40	Initial review conducted; P.I. failed to respond to stipulations
Total New Protocols: 622	
<i>Protocol Modifications</i>	<i>Type of Review</i>
111	Expedited
1	Full Board
Total Protocol Modifications: 112	
<i>Protocol Extensions</i>	<i>Type of Review</i>
93	Expedited
11	Full Board
Total Protocol Extensions: 104	

Research Misconduct

No formal allegations of research misconduct (plagiarism, fabrication, or falsification) were reported during this period. A potential incident involving misconduct was discussed during the current period and which led to a formal allegation of plagiarism being reported to the RIO after June 30 (to be included on next year’s annual report). This allegation does not involve any funding from a Public Health Service (PHS) agency.

The annual report to the Office of Research Integrity (ORI) was submitted on January 5, 2021. The annual report includes any allegations, inquiries, and investigations into incidents of research misconduct that involve PHS funding. Incidents that do not involve PHS funding are not reported to ORI. No allegations, inquiries, or investigations were included on this year’s report to ORI.

The Research Compliance Director (RCD) gave an overview of research compliance functions as part of a presentation on the Responsible Conduct of Research given by the IRB Chair. The event, held on 6/23/2021, was hosted by the Arkansas Summer Research Institute. The RCD also participated in a task force charged with developing undergraduate training in the responsible conduct of research.

Conflict of Interest and Conflict of Commitment

Fayetteville Policies and Procedures 404 was updated and renamed to *Disclosure and Management of Potential Conflicts of Interest and/or Commitment, Including Outside Activity*. The policy was formally approved by the Chancellor’s Executive Committee on 6/7/2021. Updated Appendices B and D covering Prior Approval of Outside Employment, and Disclosure of Conflicts of Interest and/or Commitment, respectively, were also approved. An online submission process, based in InfoReady, was developed for outside employment and conflict disclosures, and is presently tested

by a pilot test of selected faculty and staff. The online process is expected to be implemented campus-wide in time for the annual COI Disclosure process that takes place each fall.

Toxic Substances and Radiation Safety Committees (TSC and RSC)

The Radiation Safety Committee met four times in FY 2021. During this period, two members were reappointed to new terms and a new graduate student representative was appointed. The Vice Chancellor for Research and Innovation (VCRI) was appointed as an *ex officio* member. The committee reviewed and approved the Radiation Safety Program Annual Report which was then submitted to the Provost. The committee also reviewed and provided comments on the Non-ionizing Radiation Safety Manual.

The Toxic Substances Committee met six times in FY 2021. Several members were appointed or reappointed to the committee, including the new VCRI as an *ex officio* member. The committee reviewed the institutional Chemical Hygiene Plan; a draft Controlled Substances policy prepared by Research Compliance; documents pertaining to specific projects conducted by researchers; and requests for use of Particularly Hazardous Substances (PHS).

Following the retirement of a staff member, Shatara Porchia-White will now be managing both the TSC and RSC, in addition to managing the IBC.

Other Activities

- 28 Material Transfer Agreements; 25 Data Use Agreements; and 66 Traineeship Agreements were negotiated and executed on behalf of university researchers.
- RSCP participated in a site visit to the University of Arkansas - Fort Smith on June 3, 2021, to provide guidance on developing a comprehensive compliance program.
- The RCD participated in the inaugural meeting of the International Operations Council and provided review and comment on a draft policy and forms for international visitors to campus.
- RSCP staff attended various online conferences, workshops, and webinars in their respective compliance areas.
- The name of the office was changed to Research Integrity and Compliance

Office of Undergraduate Research

Two non-Honors Program students submitted proposals to State Undergraduate Research Fellowships (SURF) this past year; two were funded by Undergraduate Research Grants awarded through the Division. Twenty-five undergraduate summer research grants were funded by the Office of Undergraduate Research (OUR). Eight departments with summer research programs hosted approximately 100 participants on campus this summer, including NSF and NIH-funded programs. OUR staff coordinated applications, housing, stipends, and four professional development opportunities. OUR is in the process of reviving *Inquiry* Journal, including an updated web platform. Additionally, OUR coordinated with University Libraries and the Honors College to organize an inaugural Undergraduate Research Week on campus. OUR has developed new guidelines for the administration of endowed student research scholarships on this campus.

University of Arkansas Press

The press released a fantastic list of books in Fiscal Year 2021. Net book sales totaled \$429,571, an increase of 13% over the prior year, as retail bookstores, institutional libraries, and other sales channels rebounded from an economic shutdown forced by the coronavirus pandemic.

Some of the year's highlights and achievements include the following:

Publication highlights

- **Inaugural selections from Patricia Smith, new editor of the Miller Williams Poetry Series.** Acclaimed poet Patricia Smith [joins the press](#) at the helm of our flagship poetry series and welcomes to our list three new collections from a trio of vibrant voices: [Gut by J. Bailey Hutchinson](#), [All Earthly Bodies by Michael Mlekoday](#), and [Rational Anthem by Casey Thayer](#). Slated for publication in spring 2022, these books will be the first of many to vivify audiences with a new vision for how authors' lived experiences, both varied and expansive, can disrupt staid literary traditions and reinvigorate the role of lyric poetry in our everyday lives.
- **Expanding our editorial program in art with the publication of three new exhibition catalogs.** Through collaborative partnerships with the Historic Arkansas Museum, Crystal Bridges Museum of American Art, and the Peabody Essex Museum that bring the press closer to some of the region's and the country's most important art institutions, we've developed and produced four beautiful volumes that explore the complexity of American creative practice and exist themselves as illustrative and scholarly artifacts commemorating shows that were difficult for many to attend during the pandemic year. [Arkansas Made: A Survey of the Decorative, Mechanical, and Fine Arts Produced in Arkansas through 1950](#), [Crafting America: Artists and Objects, 1940 to Today](#), and [In American Waters: The Sea in American Painting](#)—all currently available for sale—showcase not only the visual and scholarly power of these curated events but also the book production expertise that Arkansas's university press has to offer.
- **A powerful and timely collection of monographs that interrogates our understanding of racial issues in Arkansas and beyond.** Our commitment to contributing meaningfully to the Black studies discourse continues with three titles that connect Arkansas history to larger movements in African American story. [American Atrocity: The Types of Violence in Lynching](#) by Guy Lancaster, [Better Living by Their Own Bootstraps: Black Women's Activism in Rural Arkansas, 1914-1965](#) by Cherisse Jones-Branch, and [The Ku Klux Klan in 1920s Arkansas: How Protestant White Nationalism Came to Rule a State](#) by Kenneth C. Barnes enrich conversations about the nature and meaning of acts of racial violence, the underestimated scope of Black female activism in the twentieth century, and the instructive clarity that comes with reconciliation with a shared past of white supremacy.

Sales highlights

- ***In American Waters***, edited by Daniel Finamore and Austen Barron Bailly: net sales of 1,211 copies, \$29,820

- ***Minuteman*** by David Stumpf: net sales of 1,305 copies, \$28,373
- ***Crafting America*** by Glenn Adamson and Jen Padgett: net sales of 722 copies, \$20,817

Award highlights

- ***Forging Communities*** by Montserrat Piera – Winner, 2019 Association for the Study of Food and Society Book Award, best edited collection
- ***Das Arkansas Echo*** by Kathleen Condray – Winner, 2021 Booker Worthen Literary Prize
- ***Fugitivism*** by S. Charles Bolton – Winner, 2020 Booker Worthen Literary Prize
- ***A Theory of Birds*** by Zaina Alsous – Winner, 2020 The George Ellenbogen Poetry Award, Arab American Book Awards and Winner, 2020 Norma Farber Book Award
- ***To Feast on Us as Their Prey*** by Rachel B. Herrmann – Winner, 2020 Association for the Study of Food and Society Book Award, Edited Volume
- ***Unmanly Grief*** by Jess Williard – Finalist, 2020 Milt Kessler Poetry Book Award
- ***Arkansas Travelers*** by Andrew J. Milson – Winner, 2020 J. G. Ragsdale Book Award, Arkansas Historical Association

Notable grants and gifts

The Press received a gift from the Tyson Family Foundation to create the Tyson Digital Library Fund as well as to establish a Tyson Art Publications Fund. The total amount of the gift was **\$300,000**.

Since receiving the gift, the Press has converted 113 titles to digital format bringing the total number of books in the digital library to 510. In addition, the Press signed an agreement to publish Rachel Stephens' ***Hidden in Plain Sight: Slavery and Suppression in Antebellum American Art*** –the first book supported by the Tyson Art Publications Fund.

Other grants supported the publication of seven new projects. Grants awarded for the year were **\$69,000**.

Office of Development

The Division of Research and Innovation continued to expand its fundraising efforts and alumni engagement and outreach during FY 2021. Julie Olsen, director of development, met personally with university alumni and corporate and foundation representatives in Arkansas and throughout the U.S. to present giving opportunities to support the Division's strategic priorities.

One hundred and eleven scheduled virtual and in-person visits took place with alumni from northwest Arkansas, central Arkansas, Texas (Dallas/Fort Worth), California (San Francisco/San Jose and Los Angeles), the east coast region (NYC and the DC/MD/VA corridor), and alumni in Indonesia, Malaysia, the Philippines, and Singapore. Sixty-eight contacts by phone, email, letter or visits at U of A campus events and campaign meetings and one hundred seventy-seven attempted contacts with donors, alumni and friends were also recorded.

The Office of Development will continue to evaluate alumni feedback from these visits to inform and develop a strategic plan for future fundraising development and alumni engagement that is sustainable, results-driven, and financially feasible to future philanthropic support for the Division's funding priorities for undergraduate research endowments and the University of Arkansas Press' operations and publication projects.

Research and Innovation, in partnership with GSIE, conducted a very successful Campaign Arkansas fundraising campaign which concluded in July 2020. Our combined units far exceeded our campaign goal of \$5 million, raising \$208,081,274.52 for Research and Innovation and \$3,437,207.19 for GSIE.

Transformational and significant gifts of note in 2020-21 are as follows:

\$194.7 million from the Walton Family Charitable Support Foundation to establish the Institute for Integrated and Innovative Research (I³R) to grow the university's cross-disciplinary research capability, expand the scope of discoveries made by University of Arkansas researchers and increase the velocity in which discoveries are transferred to the marketplace where they can improve or save lives.

The grant provides funding for the I³R research facility (construction to begin in early 2022), entrepreneurship education and an expansion of the university's presence in the region. The institute will house innovation clusters within five focus areas that fall within the university's Signature Research Areas: Food + Technology and food systems; Data Science, Materials Science and Engineering; Bioscience and Bioengineering/Research in Metabolism, and Integrative Systems Neuroscience.

\$300,000 gift from the Tyson Family Foundation to create the Tyson Digital Library Fund and the Tyson Art Publications Fund. The Tyson Digital Library Fund will be used to which will be used to complete the digital conversion to eBook of the U of A Press' approximately 700 title catalog. The Tyson Art Publications Fund will support books in the Press' art list with an emphasis on those books authored or contributed to by Tyson Scholars, who are part of the Tyson Scholars of American Art Program at Crystal Bridges Museum of American Art.

\$150,000 bequest from Dr. John and Mrs. Eve Glezen to establish the John H. and Eve R. Glezen Planetary Sciences Fund. This fund will provide funding to support space and planetary science educational outreach activities conducted by the Arkansas Center for Space and Planetary Science and for the maintenance of the university's

planetarium and associated equipment and software used for such activities through the Arkansas Center for Space and Planetary Sciences.

Finally, the Division also experienced growth in private gifts for student research scholarships. The Office of Undergraduate Research named two recipients of the F.T. Chan and Kaiyuan Chen Endowed Research Scholarship in May 2021. This endowment was established to support non-Honors undergraduate students desiring to engage in research activities during their academic career. It is our hope that this will be the first of many endowments to support non-Honors research activities across campus and support the [university's guiding priorities for Advancing Student Success and Enhancing our Research and Discovery Mission.](#)

The Hazel and Derek Sears Endowed Scholarship in Space and Planetary Sciences also reached full endowment status during 2020-21. Funds from the endowment will be used to support undergraduate and graduate students currently conducting research with faculty members in the Arkansas Center for Space and Planetary Sciences. Based on current earnings projections, the first scholarships are expected to be awarded in the 2022-23 academic year.

Office of Research Advancement

Due to reorganization of the Division in FY 21, the Office of Innovation and Industry Partnerships (IIP) was renamed Research Advancement. This unit is still comprised of two areas: Research Development and Industry Research.

In November 2020, former Chancellor Steinmetz decided that the Industry Research team within the Division should have an “internal” focus, meaning that this unit would no longer be responsible for meeting with companies and organizations external to the university. Instead, the function of Industry Research was to provide proposal development and contract support to U of A researchers working with companies. According to OSP data, FY 21 industry-sponsored research totaled \$2.3 million representing 35 industry-sponsored research projects. Joint development of federal proposals between companies and faculty (e.g., NSF PFI and SBIR/STTR) continued. Workshops regarding proposal develop for researchers interested in collaborating with industry were held four times during the summer months of 2021.

The Research Development team continued to see turnover in 2021. The Assistant Director for Research Development was recruited (May 2021) by the principal investigator (P.I.) of a recent NIH COBRE awarded project. The former assistant director had provided exceptional proposal development support for this P.I. on this \$10.8 million project. This position has been repurposed for a Research Coordinator position (beginning September 2021), and a second Research Development Specialist will be hired during FY 22 to pilot a distributed research development model. Again, very little marketing of services occurred during FY 21; however, *the research development team provided proposal development support for 25 proposals (23 unique P.I.s representing 15 departments) to eight unique sponsors and with a total requested budget amount of \$115.9 million.*

Furthermore, since the purpose of the Chancellor's Innovation and Collaboration Fund is to provide seed funding that would then allow faculty to collect preliminary data that would prompt large, federal proposals and awards, then the research development team began looking at data of previous Chancellor's Innovation and Collaboration Fund recipients and reached out to faculty to learn about progress of their projects, particularly with respect to seeking large, federal awards. The research development team assisted those faculty who had not yet begun applying for federal funding or identifying solicitations for continuation of their projects. This initiative has been well-received and should help fulfil the purpose of the Chancellor's Innovation and Collaboration Fund and offer additional sustainability to the intended efforts and significant investments.

Arkansas High Performance Computing Center

The computing center provided 51 million core hours to 395 active users across eight UofA colleges and units (ENGR, ARSC, WCOB, AFLS, DREX, EDUC, COMP, & DRI), roughly equivalent to \$4.4 million in Amazon Web Services charges. The active users consist of 91 UofA project leaders in 27 departments, researchers from UALR, ASU, UAMS, SAU, UAPB, UCA, ATU and collaborators from 13 other external institutions (with 68 active accounts external to U of A). 326 new user accounts were created, of which 81 were external to U of A. AHPCC computing, storage, and networking resources along with support efforts through training, workshops, and online help resources support more than \$80.6 million in active research grants and contracts.

Arkansas Center for Space and Planetary Sciences

Previous annual reports identified the hiring of a post-doctoral associate as the primary short-term infrastructure goal of the Center ("Growing another Vincent Chevrier" was specifically identified as a priority by the SPAC academic program external reviewers). SCTR is currently at full research capacity due to most of the participating faculty (who participate in SCTR on a volunteer basis) not wishing to add additional students to their research teams. A qualified post-doctoral fellow will relieve that saturation in numerous ways.

We acquired a NASA research grant (Vincent Chevrier, P.I.) through the Arkansas EPSCoR Program which included one year of funding for a post-doc researcher. We advertised for the position, conducted interviews, and made an offer to Dr. Marietta Morison. She accepted that offer but was quarantined in France due to the regulations caused by global pandemic. Eventually growing frustrated by the circumstances, she resigned in Fall 2020. A one-year extension to the funding was received in 2021 and we are once again currently advertising for a post-doc position.

A major unwelcome change was the short-notice retirement of our Center Lab Manager, Walter Graupner, in January 2021. We have not received authorization to replace him, and discussions for alternative approaches for meeting our experimental lab supervision requirements seem to be stalled. A recent reorganization of the Division may indicate that we need to start over.

We had five Ph.D. students complete their degree requirements in 2020-2021; all are excellent representatives of our program and the university, as will be detailed below.

Report of Progress and Accomplishments Related to University Priorities

SCTR contributes significantly to Women-in-STEM initiatives. The Center is the home of the interdisciplinary graduate degree programs in Space and Planetary Sciences (SPAC). Virtually all of the research in the Center is conducted by SPAC students, under the supervision of participating faculty. The majority of the current SPAC Ph.D. students and the majority of our graduates are female. Our five most recent Ph.D. grads are women as are four of our seven new students for Fall 2021.

Achievements in Professional Performance, Research, Scholarship and Public Service

Faculty affiliated with SCTR submitted 14 proposals on topics which are within the Center's areas of interest and would be anticipated to support SCTR students, in addition to proposals within their departmental research areas. Several are still under review. Vincent Chevrier, the only SCTR faculty member who is full-time with the Center, was awarded four new grants totaling \$909,120. He had seven active research grants during the year with a total value of \$2,470,290.

Faculty and students had 19 journal articles published on research directly related to the SCTR mission, including 17 authorships by students or recent graduates. Twenty-three conference presentations/posters were also accepted, although not all were presented because of quarantines. These papers involved 12 student authorships. Altogether, 17 students or recent graduates had publications during the year.

The SPAC program admitted nine Ph.D. students for Fall 2021, seven of whom accepted. Three of the seven were awarded Doctoral Academy Fellowships, with one also receiving a Bridge-to-the-Doctorate Fellowship for Hispanic Ph.D. students. We also have a Native American female starting her Ph.D. in the fall semester of 2021. The program is maintaining a stable student population of about 18-22 Ph.D. students and two - four M.S. students.

Our usually robust public service outreach efforts were stifled due to the coronavirus pandemic.

Student and Alumni Achievements

Current Ph.D. student Jill McDonald was selected for a 2021 NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST) fellowship; one of only 32 awarded nationwide. Current Ph.D. student Katherine Dzurilla was elected as President of the Graduate-Professional Student Congress, replacing another of our Ph.D. students, Rachel Slank.

A brief summary of the accomplishments of our five most recent Ph.D. graduates follows. Although two (Sara Port and Caitlin Ahrens) graduated in 2020 and were identified in last year's report, I want to demonstrate that the trend of SCTR attracting outstanding students and then producing remarkably talented graduates continues.

Sara Port: BS-Physics from Stony Brook University; interned with Japanese Space Agency (JAXA); interned with German Space Agency (DLR); served on NASA and NSF proposal review panels while a graduate student; served on five NASA committees while a graduate student; Sturgis Fellowship, UA Doctoral Academy Fellowship, Amelia Earhart Fellowship

(one of 35 awarded internationally); 4 journals and 22 conference papers; graduated 2020; now at NASA Glenn Research Center.

Caitlin Ahrens: BS-Physics and Geology from WVU; nationally recognized for promoting women in STEM; named as the Outstanding Young West Virginian in 2018; selected by JCI (Jaycees) as one of the Ten Outstanding Young Americans for 2018; member of two NASA working groups, NASA proposal reviewer and review panel Executive Secretary while a graduate student; selected as a NASA Solar System Ambassador; 10 journals and 17 conference papers; graduated 2020; now at NASA Goddard Space Flight Center.

Kendra Farnsworth: BS-Environmental Geoscience from Texas A&M; BS-Astrophysics from Baylor University; served as Executive Secretary and external reviewer for NASA proposal review panel while a graduate student; research internship at MIT; GSIE Student Ambassador; UA Doctoral Academy Fellowship; 4 journals and 15 conference presentations; graduated 2021; now at NASA Goddard Space Flight Center.

Kim Zoldak: BS-Physics from Indiana University of Pennsylvania; BS-Meteorology from California University of Pennsylvania; selected for Summer Research Internship at NASA Goddard Space Flight Center; selected twice as a NASA Space Science Student Ambassador; selected as one of the first NASA Astronomy Outreach Network Advisors; graduated 2021; currently Visiting Assistant Professor of Physics at Oklahoma State University.

Ellen Czaplinski: BS-Planetary Science from Purdue; NASA Earth and Space Sciences Fellowship (one of 33 nationwide); Amelia Earhart Fellowship (one of 35 internationally); member of Mars Desert Research Station; NASA proposal reviewer and review panel Executive Secretary while a graduate student; eight journals and 26 conference papers; graduated 2021; now at NASA-Jet Propulsion Laboratory.

Institute of Nanoscale Science and Engineering

The Institute is the University of Arkansas' umbrella organization that has brought interdisciplinary talents together for research and educational activities that have attracted government and industry support for nanoscale science and engineering.

Mission

Our mission is to (1) prepare the next generation of creative nanotechnology scientists, engineers, entrepreneurs and (2) provide the infrastructure for staff, students, and faculty to work together to accomplish great scholarly work at the nanoscale, bringing nanomaterials to devices.

Responsibilities and Progress

- Prepared the next generation of creative nanotechnology scientists, engineers, entrepreneurs. Our progress this year focused on the successful transition of our micro-EP program into a new Material Science and Engineering Master and Doctoral Degree program.
- Provided the infrastructure for staff, students, and faculty to work together to accomplish great scholarly work. We accomplish this by providing a full suite of high-quality nanoscale

instrumentation along with corresponding training to graduate and postdoctoral students. The support for the institute is used entirely for support for the analytical atomic scale instrumentation. The impact is that we provided training to 77 students and had over 90 different internal users from about 32 different faculty. We also provide service to 15 different external users from six universities, and five private companies. Of course, this year, these numbers although high, were lower due to the pandemic.

- Met high expectations of scholarly excellence. Our institute has continued its publication record of about 5.2 publications per year per faculty while working with about 5.4 graduate students per faculty.
- Developed winning proposals to federal agencies. Here we have exceeded a sum of about \$8M in winning proposals for the institute faculty based on data from RSSP and an even higher amount for pending proposals. Many of our proposals are collaborations between the nano faculty.
- New faculty hires. We had one new hire to the group this year and one failed search. However, we have been given one tenure track position to hire a new person in material science and engineering. The senior group on the team also help the younger faculty in writing proposals, even working one-on-one to developing winning proposals, and introducing them to specific program managers. We also continued to work hard for congressional support, especially for equipment for the user facility.

The Institute has unique strengths in a competitive and expanding field of Material Science and Engineering.

- Best growth facilities in the nation: Solid source MBE, MOCVD, and Colloidal Chemistry for precision control over the growth and morphology of nanoscale materials ranging from semiconductors to oxides, to metal materials, to proteins. Initial work has focused on their extraordinarily rich properties and our understanding of them. These materials can bring a new era of electronics, photonics, imaging, sensors, and energy conversion.
- Imaging facilities: Transmission and scanning electron microscopy. X-ray diffraction and x-ray Photoluminescence Spectroscopy together reveal the quality and nature of the crystal structure and bonding at the interface of different materials. These are among the best instruments in the nation, and they provide the core analytical tools for the physical, life, and agricultural sciences, and engineering, as a user facility on our campus. These facilities are carefully localized, staffed, maintained, and used to support and train all students and faculty. All of our equipment in the core/user facility were obtained through team efforts on grants.
- Talent: We have the talent and equipment to measure material electronic structure, photoluminescence, mobility, hardness, piezoelectric coefficient, static and dynamic dielectric responses, magnetic behavior, and magneto and nonlinear optic coefficients - and their dependence on size, strain, growth conditions, composition, and temperature. The team produces about 80 publication/year with an increase of 1000 citations a year.

- Modeling: World class faculty, known for material science breakthroughs using first-principle simulations, effective Hamiltonian approaches, and analytical methods to predict and guide the development of coupled dissimilar nanoscale materials. For example, one of our faculty has over 50 PRL publications and many of our faculty publish in Science and Nature. Theorists are co-located with experimentalists, study the same materials, and have the tools and talent to calculate behavior at the nanoscale.
- Spin-off companies: We maintain close collaboration with 5 of our currently active spin-off companies and some faculty have or are pursuing contracts with other companies.
- Education Approach: Nearly 20 years ago, we established the micro-electronics-photonics (μ EP) graduate MS/Ph.D. program based on an NSF IGERT grant. The program has grown to over 60 graduate students, over 300 graduates, and is now self-supporting. Of course, this year we developed the new material science and engineering program which is a major step to compete for students from other undergraduate material science and engineering programs. It also increases the opportunity for our graduates for job opportunities. In addition, we are continuing the undergraduate minor originally supported by NSF across Fulbright College and the College of Engineering. The minor will also be changed to material science and engineering.