



## LRSEF 2021 Virtual Fair Annual Report

The Louisville Regional Science & Engineering Fair 57<sup>th</sup> annual competition affiliated with the Regeneron International Science & Engineering Fair and the Broadcom MASTERS program was held as **a virtual event for the first time in its history** due to the health and safety concerns with the COVID-19 pandemic in 2021.

Hosted by the 100% volunteer Board of Directors, LRSEF was held on **Saturday, March 6, 2021, via Zoom technology with 19 schools participating and 314 middle and high school students presenting 288 projects**. There were 13 public schools in the event and six private schools. A total of 164 volunteer judges in teams of three interviewed students in three rounds of virtual judging. For the first time this year, LRSEF requested that all judges and volunteers participate in background checks before working with participating students.

### LRSEF 2021: How did it work virtually?

To determine winners of over 60 LRSEF Special Awards sponsored by local and national organizations, **online judging was conducted by 37 volunteer judges** the week before the main event. They reviewed student-produced Virtual Project Materials and videos, then met virtually to choose the winners. For the five most prestigious awards, finalists were determined and online interviews were held via Zoom with top candidates. Once the judging was complete, \$5,325 was earmarked to give to students winning each 2021 Special Award.

**On Saturday March 6**, three rounds of online judging interviews via Zoom took place for Category Awards of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place in 21 different STEM categories at both the middle and high school levels. Many categories were sponsored by local companies and donors. Over 160 volunteer judges were coordinated in teams of three to meet with students in virtual interviews to learn about their projects.

Category winners received ribbons and a total of \$8,600 in cash awards donated by generous local sponsors. **GE Best of Fair awards of \$2,840 and trophies were given to eight projects: three in middle school and five in high school**. The top three schools in both divisions were awarded trophies and cash for their STEM programs.

**In all, \$16,765 was awarded to students and teachers achieving excellence in the STEM fields at LRSEF Virtual Fair 2021**. This is especially significant during a challenging year when the majority of

LRSEF students were working independently from home during the pandemic. LRSEF also created bright purple 2021 t-shirts with title sponsor GE Appliances (GEA) logo as a gift to every student participant, and most were distributed in advance of the online judging day. Many of the students chose to wear the t-shirts during their Zoom interviews. LRSEF also gifted the volunteer judges and supporting teachers with a grey t-shirt with GE logo as a gift acknowledging their extraordinary efforts during this COVID-19 year.

### **By the numbers:**

A very special online **broadcast from GE Appliances Monogram Hall** was held on Monday evening, March 8 hosted by GEA/LRSEF volunteers to announce the winners of LRSEF 2021. **Over 1,000 people around the region tuned in to hear the results.** In April, all awards were delivered to each school by teams of LRSEF Board volunteers once students returned to in-person sessions.

For the high school division, there were 11 schools participating, with 159 projects presented. Of these, 15 were team projects and 144 were solo. **The total number of high school students was 181.** Winning schools were 1<sup>st</sup> Eastern HS, 2<sup>nd</sup> Ballard HS and 3<sup>rd</sup> Central HS.

The top five high school projects were named **GE Best of Fair and promoted to the Regeneron International Science Fair** which was held virtually in May 2021. The ISEF Finalists were Samyuktha Jaganathan Ballard HS, Aditi Kona, North Oldham HS, Andrew Park, Samirah Salifu and Jason Zhang of Gatton Academy of Mathematics and Science. For the very first time LRSEF was **honored to award the First Build Innovation Awards** of \$750 to support post-secondary education to Veenasravani Pendyala of North Oldham HS and Samuel Smallwood of Central HS. Amazon Innovation Awards were given to Trent Hogan of Central HS and Jet Sendaydiego of St. Xavier HS.

For the middle school division there were eight schools participating with 129 projects presented. Of these, 125 were solo and four were team projects with **133 total middle school students** in the event. Winning schools were 1<sup>st</sup> Saint Francis of Assisi, 2<sup>nd</sup> J. Graham Brown Middle School and 3<sup>rd</sup> Nur Islamic school. **The top three projects were named GE Best of Fair** and were presented by Drew Ashley, Sophie Fabing and Emerson Wyatt of Saint Francis of Assisi. Also, 19 middle school scientists were named as winners of the Broadcom MASTERS national competition and two outstanding projects received special national awards. Charlotte Connally of Saint Francis of Assisi was named Lemelson Early Inventor and Fahmeeda Mohammed of Nur Islamic School was awarded the Department of Defense Leadership Prize. Amazon Innovation Awards went to Ellery Reynolds of Saint Francis of Assisi & Ifrah Shaik of Nur Islamic School.

### **LRSEF student results at state fair:**

LRSEF promoted 85 winning students to compete in the **Kentucky Science and Engineering Fair** held virtually on Saturday March 27, 2021. Being promoted by a regional fair is the only way students can compete at KYSEF. On that day, 46 of the 85 students won Category Awards at KYSEF. LRSEF students won twelve 1<sup>st</sup> place awards, twenty-three 2<sup>nd</sup> place awards and eleven 3<sup>rd</sup> place awards. Of the LRSEF winning high school students, 15 were from seven different high schools, nine were female and six males.

The 31 LRSEF winning middle school students were from four different middle schools and 21 were female and 11 were males.

**LRSEF winner Annika Chadha of Noe Middle school was selected as a Best of Fair winner at KYSEF** and seven additional LRSEF students were named as Broadcom MASTERS. Three students won Amazon Innovation Awards at the state level, Trent Hogan of Central HS, Ifrah Shaik of Nur Islamic School and Ellery Reynolds of Saint Francis of Assisi. In addition, a total of 22 LRSEF students won Special Awards at KYSEF 2021, 18 from middle school and four were high school students.

### **Regeneron International Science and Engineering Fair May 2021:**

LRSEF promoted **five high school projects to the ISEF virtual competition**, including three females and two males from three different high schools. (See above) The event was held over three weeks in May and included online judging, special lectures, and virtual social events. The competition featured over 1,800 young scientists representing 49 states and 64 countries across the world.

A Regeneron ISEF-affiliated science fair (such as LRSEF) is a research-based, high school competition that is a member of Society for Science & the Public's affiliated fair network. These competitions exist in all 50 states, the District of Columbia, and more than 75 countries, regions, and territories. Category awards range from \$500 to \$5,000. **Historically held in person, 2021 marks the first time in its more than 70-year history** that the competition took place virtually. Top finalists were honored during two virtual ceremonies, Special Awards on May 20 and Grand Awards on May 21 and featured the announcement of the top prize of \$75,000. In total, more than \$5 million US was awarded to the finalists, who were evaluated based on their projects' creativity, innovation, and level of scientific inquiry.

### **LRSEF is proud to announce two ISEF winners from our team:**

Winner of a **Second Grand Award in Chemistry** and \$2,000 was Jason Zhang from The Carol Martin Gatton Academy of Mathematics and Science in Bowling Green, for his project *Novel Synthesis of Important Pharmaceutical Compounds using Visible Light and a Photocatalyst*. Jason was one of four second place winners in chemistry and the only one from the USA, others were from Australia, Malaysia, and Thailand. Congratulations, Jason.

Aditi Kona from North Oldham High School in Prospect was winner of a new ISEF Special Award called **The Potamkin Prize for Students** for her project in Cellular and Molecular Biology entitled *Characterization of Insulin-degrading Enzyme: Using Molecular Visualization Systems to Understand Substrate Recognition in Type 2 Diabetes and Alzheimers*. The Potamkin Prize recognizes achievements of scientific researchers in brain degenerative diseases. Since 1988, The Potamkin Prize has bestowed more than \$3 million to over 70 researchers. This new ISEF student prize aims to support the education of young researchers with curious minds and a desire to make important discoveries that will benefit humanity for years to come. LRSEF is proud of you, Aditi.

LRSEF congratulates all our ISEF participants including Samyuktha Jaganathan of Ballard HS, and Andrew Park and Samirah Salifu of Gatton Academy. ***“Every single Regeneron ISEF finalist has persevered in their pursuit of science in the face of the myriad challenges of the COVID-19 pandemic, and we could not be prouder to showcase their work on a global stage. We look forward to seeing the contributions these***

*young leaders continue to make to their fields and the world.”* Maya Ajmera, President and CEO of Society for Science and Publisher of *Science News*.

**LRSEF nominated 19 students for this middle school STEM Competition:**

Broadcom MASTERS® (Math, Applied Science, Technology, and Engineering for Rising Stars) has been offered by the Society for Science since 2010 with the generous support of the Broadcom Foundation. The online application asks questions about student’s science or engineering fair project and your understanding of science and engineering in everyday life.

**Seventeen LRSEF students** submitted their application by the June 9 deadline and are officially in the 2021 national competition. Applicants received a t-shirt, bumper sticker, and other prizes. The 2021 entries are judged during the summer and 300 finalists will be announced on Sept. 1. From these MASTERS, **30 finalists and one parent/guardian will win an all-expense-paid trip to the** national finals in Washington, DC in October to showcase their projects, compete in teams and visit sites that celebrate innovation through STEM. LRSEF has been fortunate to have two national winners of Broadcom in the past few years. *(LRSEF Annual report as of July 15, 2021. Report will be updated as results are announced).*

## LRSEF 2021 Sponsors

*Funds received July 1, 2020 – April 15, 2021*

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## Memorial & Honorary Gifts

*Gifts as of February 6, 2021*

In memory of **Dr. Nancy Keck**, LRSEF Board & Emeritus member, STEM leader, one of the founders of KYSEF and hosts of ISEF 1997/2002 friends and colleagues have sponsored the Junior & Senior Category Awards in BIOCHEMISTRY for LRSEF 2021. *Donations from Keith Cole, Ashley Fields, Ronda K. Fields, Dr. & Mrs. Lawrence Gittleman, Charlotte & Joel Gittelson, Bob Olsen and Kristin Fields Schoen.*

In memory of **Dr. Nancy Keck**, LRSEF Board & Emeritus member, STEM leader, one of the founders of KYSEF and hosts of ISEF 1997/2002 friends and colleagues have sponsored the Junior Award in SYSTEMS SOFTWARE. *Donations are from Theresa Mattei and Terry Roach.*

In memory of **Dr. Thomas H. Crawford**, former LRSEF Fair Director, Provost & Chemistry Professor at University of Louisville, LRSEF Board & Emeritus member; friends and colleagues have sponsored the Junior & Senior Category Awards in CHEMISTRY for LRSEF 2021. *Donations from Keith Cole, Ashley Fields, Ronda K. Fields, Amy Lowen, Theresa Mattei, Kristin Fields Schoen and Debbie Shwab.*

In memory of **Joseph Ziegler**, engineer at GE Appliances, coworker of Joel and family friend. *Donation from Joel & Charlotte Gittelson.*

In honor of Dr. **Robert Ackland & John Kurt Brueckner**, the Junior Category Awards in BIOMEDICAL & HEALTH SCIENCES is sponsored by Dr. Jeffrey Petruska.

## Category Award Sponsors

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Chemistry (CHEM) — In Memory of Dr. Thomas H. Crawford  
Computational Biology and Bioinformatics (CBIO) — The Kentucky Chapter of the Air & Waste Management Association

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*Awards confirmed by February 6, 2021*

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