Instructions: Please supply an abstract, in English, of no more than 400 words, fitting on a single page, submitted in Word, and using the following format, in 10 point Arial font and spacing of 1.5 lines:

Seeding the Future Bioeconomy: Building the STEM Workforce Through HudsonAlpha Educational Outreach

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A thriving circular bioeconomy depends on a steady infusion of skilled scientists, technicians, and innovators. Yet, the development of this workforce begins long before a young person enters a college program or applies for a job — it starts the moment they first see themselves as someone who belongs in science. At the HudsonAlpha Institute for Biotechnology, our Educational Outreach team is committed to inspiring and preparing the next generation of STEM professionals through a continuum of experiences that span middle school, high school, and college.

HudsonAlpha is widely recognized for pioneering genomic research in both human health and agricultural science. In agriculture, our work in plant genomics drives the development of improved crops and sustainable practices, directly supporting bioeconomy goals. Beyond research, however, we recognize that turning scientific discoveries into real-world solutions requires a robust talent pipeline. Our Educational Outreach programs are intentionally designed to engage students early, build confidence in scientific skills, and illuminate pathways into STEM careers.

This presentation will provide an overview of HudsonAlpha's student-focused programming, illustrating how our K–12 and undergraduate initiatives form an integrated pipeline from curiosity to career. Signature programs such as **Biotech Academy** (immersive high school lab and career experiences), **BioTrain Internships** (paid summer research and industry positions for college students), and **Biotech Launch** (hands-on lab training, certifications, and internships for emerging professionals) will be highlighted as examples of scalable, replicable approaches to workforce development. We will explore how each stage in this pipeline reinforces skills, strengthens career identity, and bridges students into the highly technical and rapidly evolving fields that underpin the circular bioeconomy. By engaging students early, offering repeated and authentic STEM experiences, and connecting them directly to the work of biotechnology in agriculture, health, and sustainability, HudsonAlpha is helping to grow a workforce capable of advancing innovation in bioderived materials, renewable chemicals, and other sectors critical to a resilient and circular bioeconomy.