

Dear Faculty, Postdocs, Students, and Friends:

You are cordially invited to attend a virtual seminar presented by



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Title:
**“BABBAGE’S CABBAGE: THE LOGIC OF INFORMATION
PROCESSING IN PLANTS”**

DATE: Friday, November 19, 2021

TIME: 12:00 pm PST

ZOOM MEETING ID: 958 7871 9938

PASSCODE: 586819

Host: Julia Bailey-Serres

Abstract: At least one in seven people on this planet right now is malnourished. This incalculable loss to human potential will grow only more dire with the impending failures of the agricultural system in the face of climate change, especially among the world’s most vulnerable populations. Solutions will require contributions from multiple disciplines, and I hope one part of this effort will be engineering crops that are more resilient and resource efficient. Such technologies will require understanding and implementing information processing in plants (what I call plant logic)—inspired by and working in harmony with existing networks. As the first phase of this work, we have transported the auxin signaling pathway from plants into yeast. This ‘AuxInYeast’ system gives us a single integrated, inducible, synthetic locus composed of readily swappable, engineerable components and easily quantifiable outputs. These qualities are highly advantageous for discovering new modes of regulation, building dynamic quantitative models, and ultimately, rationally engineering cellular responses. For example, we have recently used AuxInYeast

to discover a novel and highly conserved molecular mechanism that facilitates rapid and coordinated gene activation. Another critical ingredient in facing the challenges ahead is building and supporting the diverse teams needed to do post disciplinary work equitably and effectively. I will present some personal reflections on this topic, as well as share several on-going collaborative projects aimed at improving the cultures and climates of plant science.

