A Proposal for Profitable Enhanced Geothermal Systems using Branching, Caging, and Hydropropping

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Dr. Luke Frash is a staff scientist at Los Alamos National Laboratory. His presentation will be at 9:00 Central Time on Thursday, April 6, 2023. The topic is **"A Proposal for Profitable Enhanced Geothermal Systems using Branching, Caging, and Hydropropping."**

Abstract

Hydraulic fracturing in the field is much more complicated than what we typically consider for our theory and models. Real fractures will swarm, branch, and divert as they follow the path of least resistance through heterogeneous naturally fractured rock. In the context of geothermal energy, this complexity could be beneficial for increasing surface area, but it is likely to be hugely detrimental with respect to thermal short circuiting. In this presentation, we will explore mechanisms to control fracture complexity and present a solution that works with the design uncertainty that arises from complexity. Ultimately, we will propose a robust geothermal development approach that could help make Enhanced Geothermal Systems (EGS) economically viable today, using currently available tools.

Biography

Luke P. Frash is a staff scientist at Los Alamos National Laboratory who is performing research for geothermal energy, oil & gas, carbon sequestration, and underground hydrogen storage. His work includes more than 10 years of theory development, modeling, lab experiments, and field studies with a focus on rock fracturing and fluid flow coupled processes. He is a graduate of Colorado School of Mines and University of Canterbury as well as a Private Pilot. He is the lead developer of Geothermal Design Tool (GeoDT) and a pioneer for Fracture Caging to control injection induced seismicity.