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Physics Department

Bailey College of Science and Mathematics

Is Your Brain Critical?

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Thursday, May 16, 2024
11:10 am - 12:00 Noon
Building 53, Room 215
Pizza will be served!

Abstract: In this talk I will first discuss the duality between complexity and criticality. A fundamental problem in complex systems is what underlying mechanisms lead to the emergence of scaling behavior. The human brain is the most complex system in the universe. It shows scaling structurally as well as dynamically. I will discuss experimental evidence which shows that the mammalian brain is in a critical state. Next, I will discuss my own work over the past decade which sheds light on the self-organizing critical dynamics in the human brain. I will end by discussing clinical relevance of criticality in the brain.

Bio: I was born in Shiraz Iran, and I had my first physics course in the 9th grade and fell in love with the subject right away. Years later, I got my bachelor's degree from UCLA (with honors) and won a scholarship to study condensed matter physics at UCSB. I moved to my home country in 2000 where I helped transform the physics department at Shiraz University to become a leading graduate program in Iran. I moved back to the US in 2023 where I hope to mentor and teach talented undergraduate students. When I am not "doing" physics, I like to hike, swim and play poker.