



From Sphere to Oblate Star: Simulating the Effects of Rapid Rotation on Stellar Structure

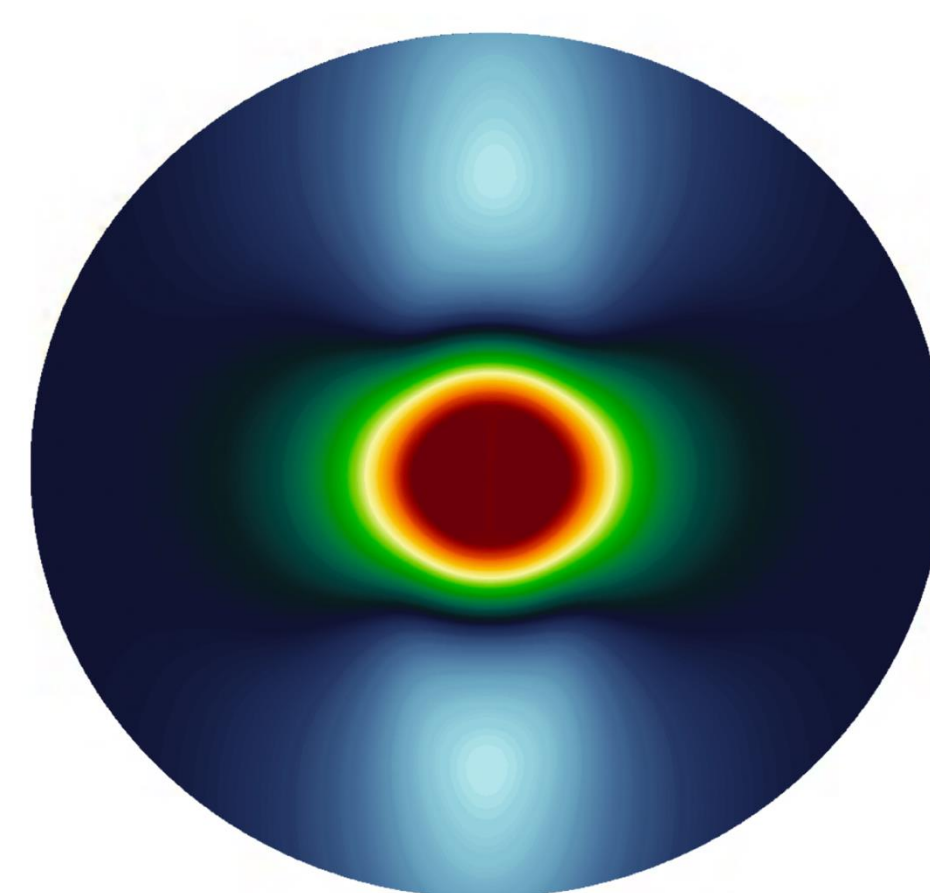
London Starks (Florida A&M University, LLNL), mentor: Jane Pratt (LLNL)

ABOUT ME

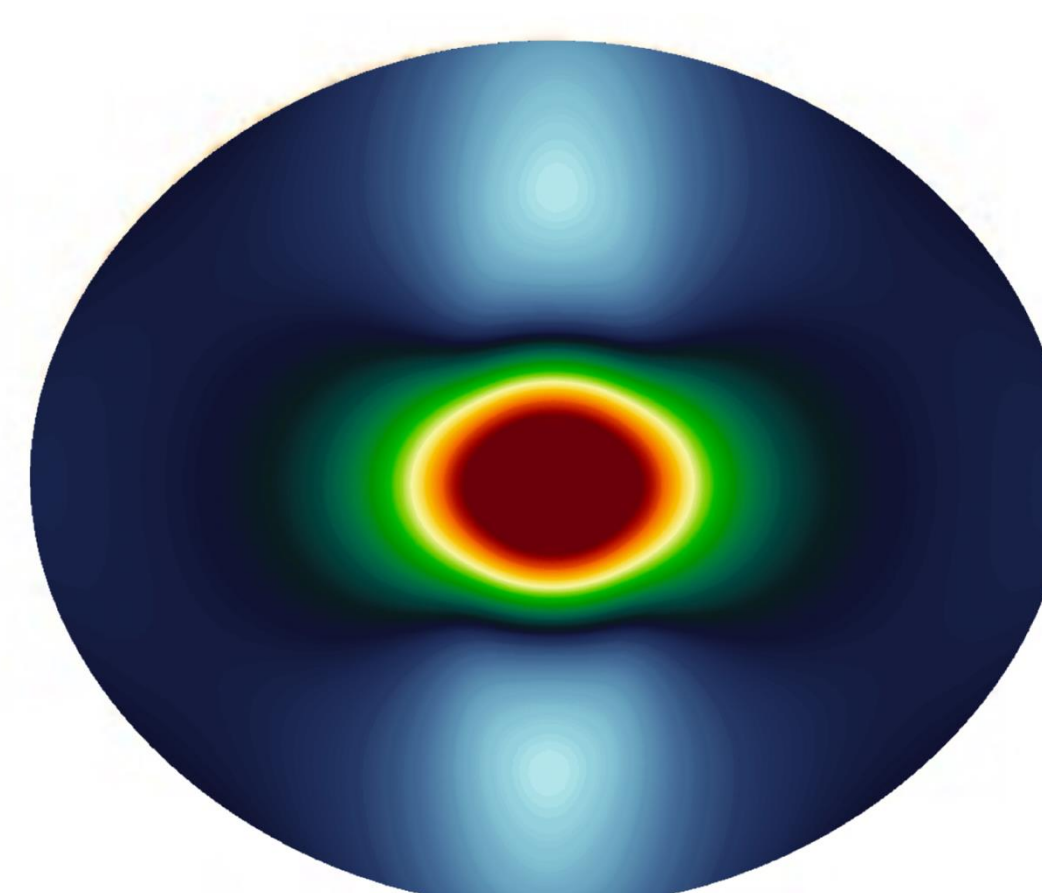
- Recent Graduate of Florida A&M University - Physics Major Computer Science Minor
- Incoming M.S. Physics student at Illinois State University
- My long-term goal is to earn a Ph.D. in Earth and Planetary Sciences and pursue a career conducting computational and observational research while mentoring the next generation of scientists.
- I chose to complete my summer fellowship at Lawrence Livermore National Laboratory because it offered the opportunity to strengthen my programming and computational modeling skills while contributing to ongoing scientific research with real-world applications



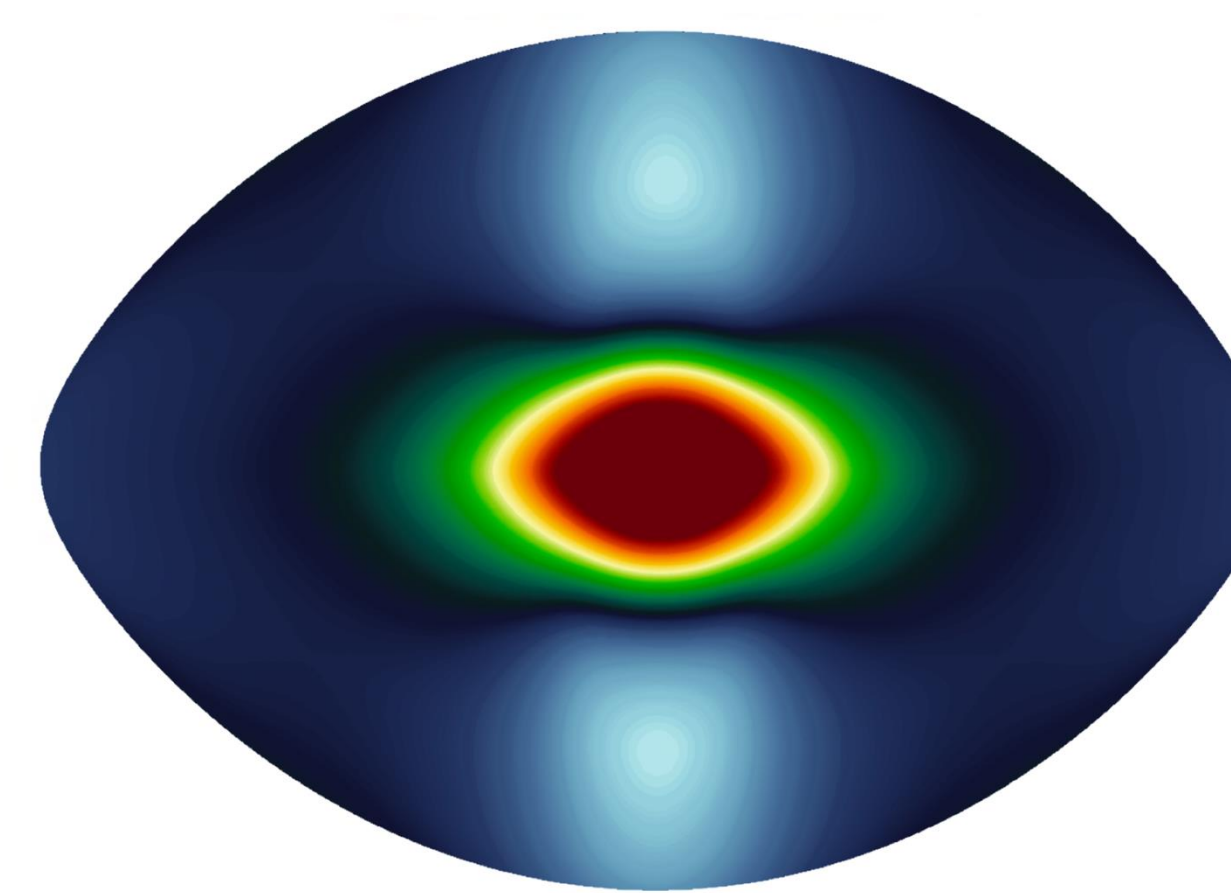
SUMMER RESEARCH



slow rotation

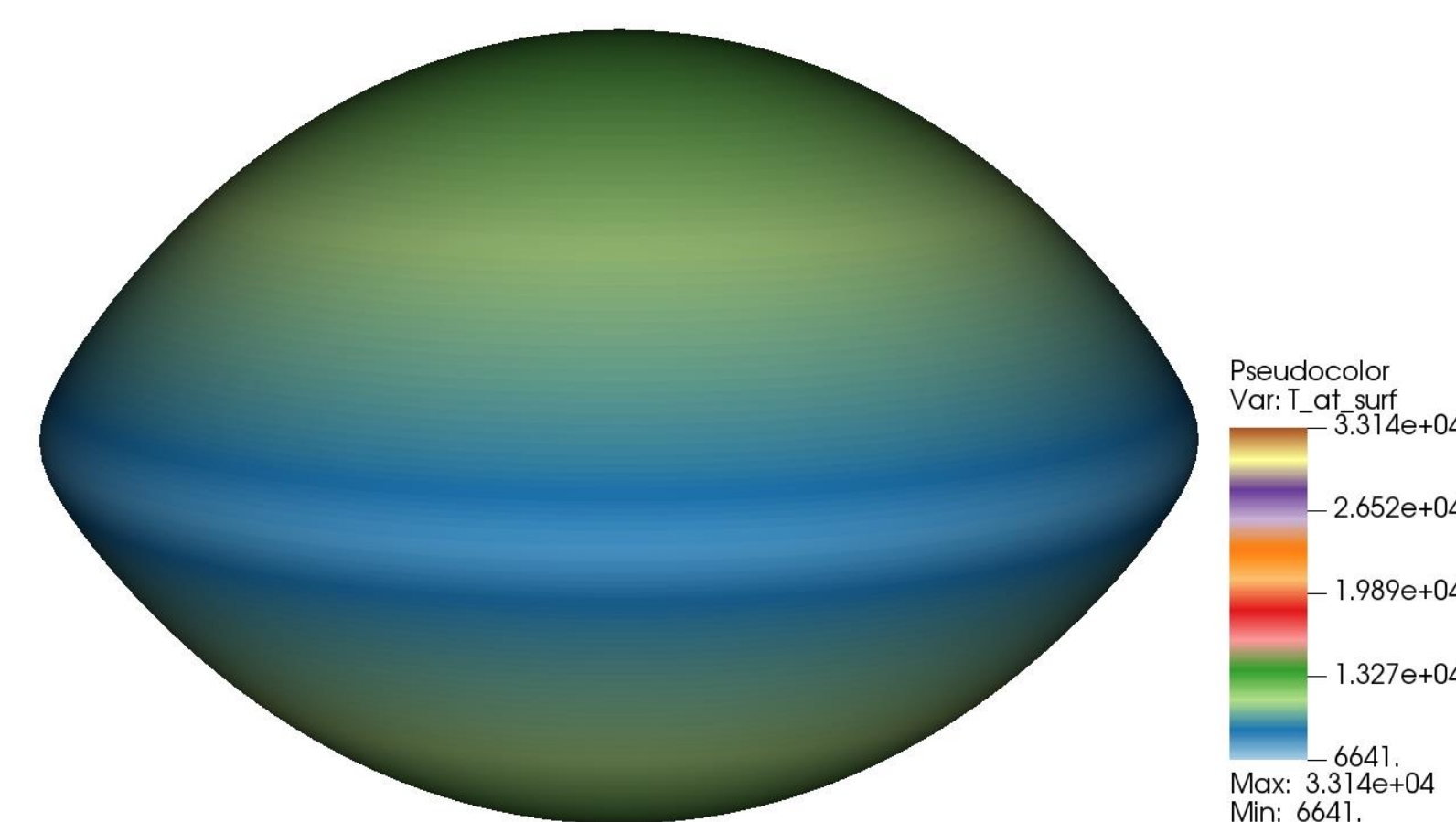


moderate rotation



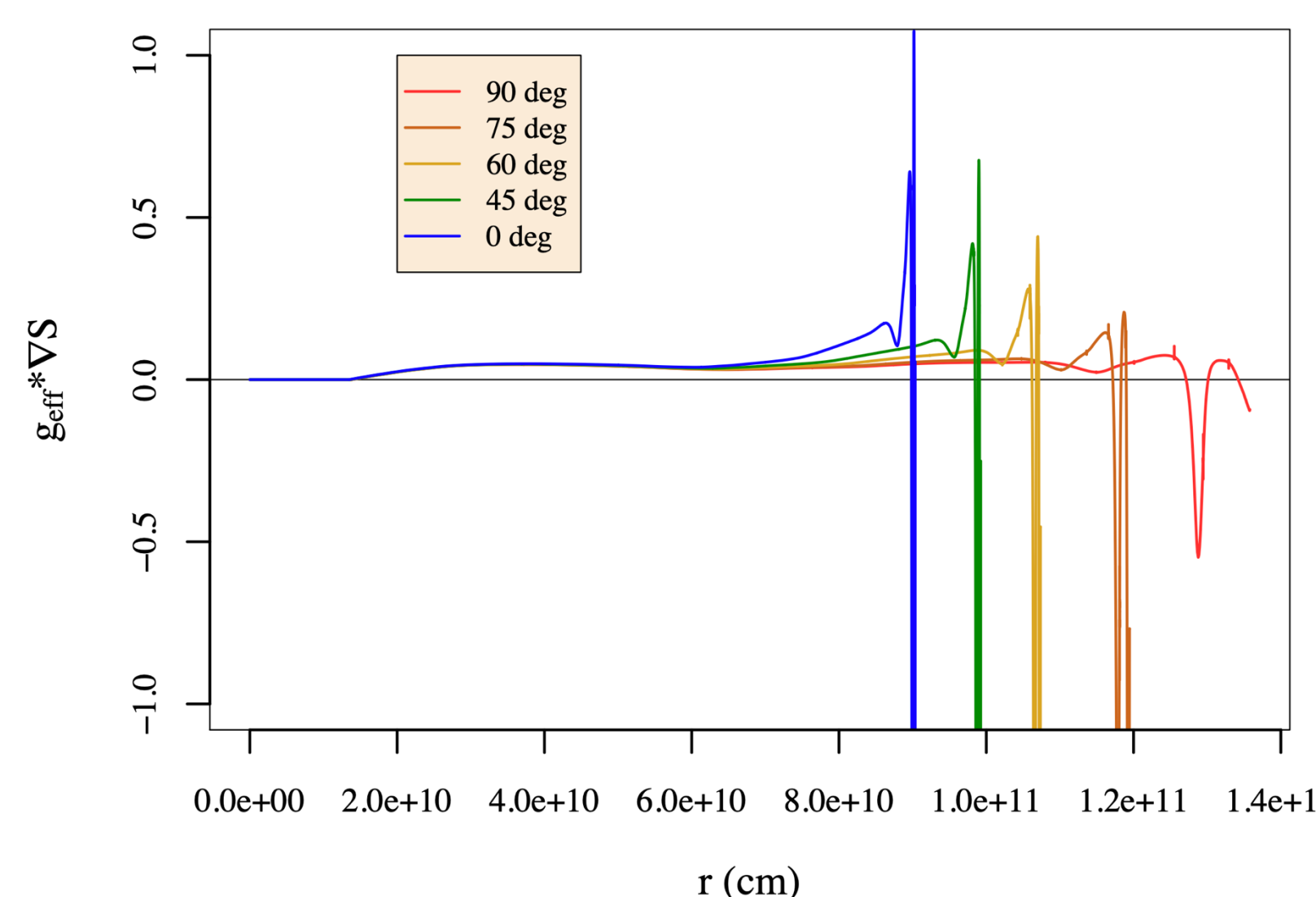
rapid rotation

Visualization of differential rotation in three stellar structure calculations performed with a two dimensional stellar structure code.



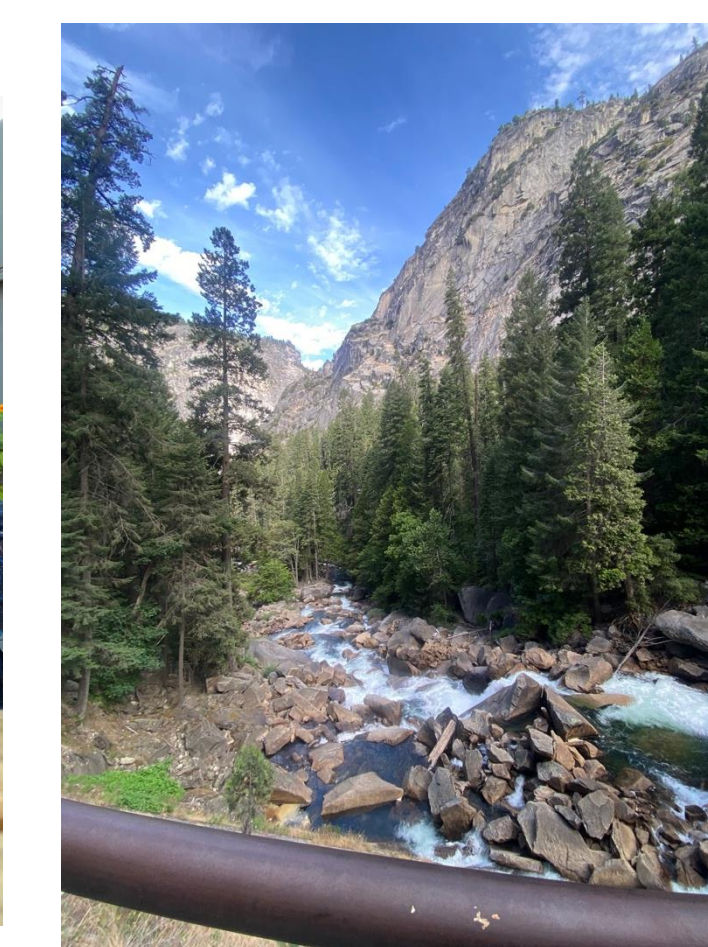
Visualization of gravity darkening in a 1.4 solar mass star rotating at 0.95 of the critical angular velocity.

Convection zones in a 1.4 solar mass star rotating at 0.98 of the critical angular velocity. When the curve is negative, the fluid is unstable to thermal convection. A convective core is present, as well as a thin convective envelope. The convective envelope has a depth that varies by polar angle.



LLF AWARD

- This summer's LLF fellowship provided the opportunity to collaborate with students and researchers from a wide range of scientific disciplines.
- Through seminars, professional development workshops, networking events, and collaborative discussions, I gained valuable insight into the diverse research taking place across Lawrence Livermore National Laboratory.
- Working alongside fellow interns fostered an environment of curiosity, collaboration, and shared learning. Beyond advancing my technical skills, this experience strengthened my confidence as a scientist, expanded my professional network, and reinforced my commitment to pursuing a career in research.



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