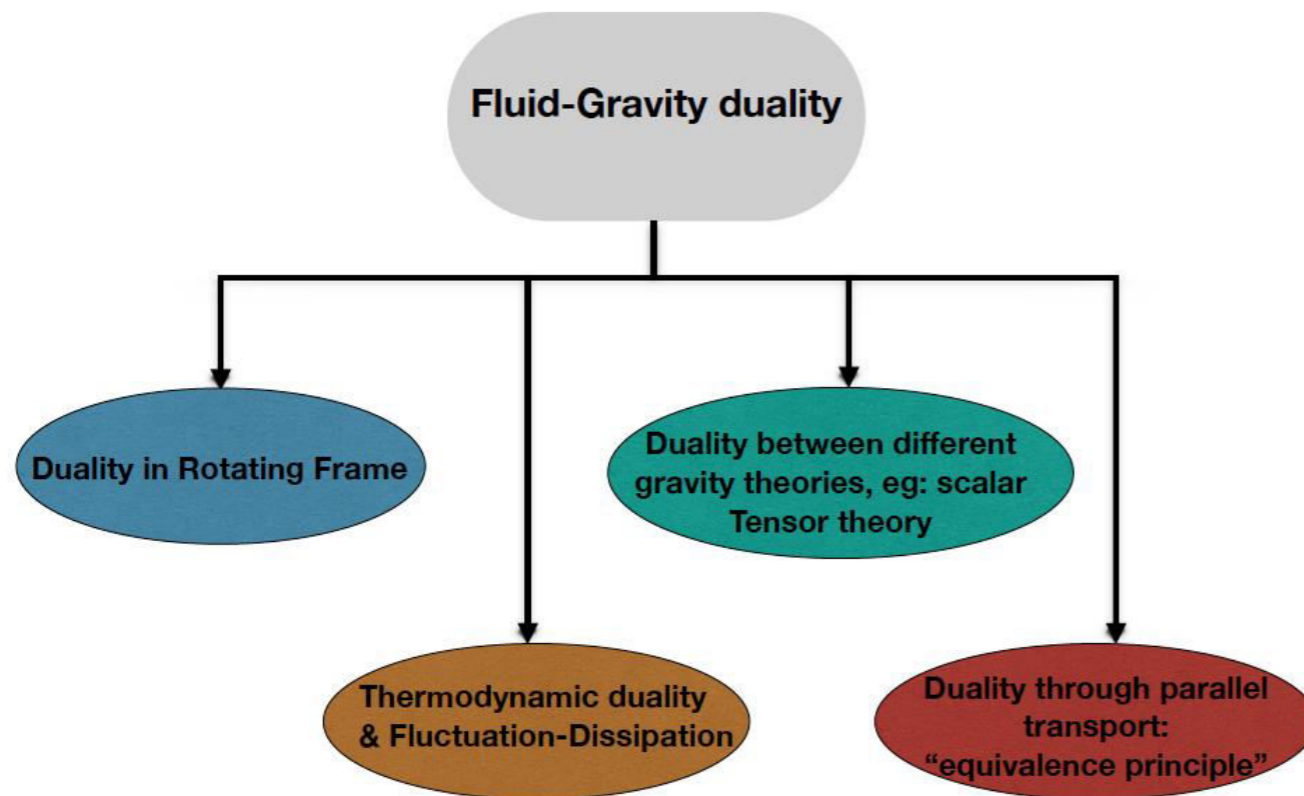


Connecting Navier-Stokes equation with dynamical equations in gravity: a new perspective

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Objectives, Theme and Deliverables



- Presentation of results in national and international seminars and publication in peer-reviewed journals, with acknowledgement to SERB.
- Training of manpower (e.g. Post doc, Ph.D. student).
- Fluid-gravity duality will be uncovered. This helps to understand one theory by knowing the other theory.
- Off-shell approach \Rightarrow Quantum many particle theory in fluid side \leftrightarrow Quantum theory of free fluid on the hypersurface.
No need to quantize gravity; a semiclassical analysis.

Current status

- Gravitational field equation, projected on a null surface in Scalar tensor theory, has been shown to have fluid equation structure. Also the thermodynamic structure of field equations has been obtained on the null surface. e-Print: [2105.07787](https://arxiv.org/abs/2105.07787) [gr-qc] (accepted in Phys. Rev. D).
- Fluid as well as thermodynamic descriptions of gravity in presence of torsion has been done. The manuscript is under preparation.