

# Mathematical General Relativity: some questions involving elliptic PDEs

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## **Abstract:**

After a brief introduction into General Relativity, in particular introducing the Einstein equations, we will concentrate on so-called initial data sets. These are special Riemannian manifolds arising as "hypersurfaces of constant time" in relativistic spacetimes and solving a system of geometric elliptic PDEs. We will discuss a selection of questions one can ask about initial data sets such as "How do you define their mass and center of mass?"