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# Gravitational collapse in Painlevé-Gullstrand coordinates

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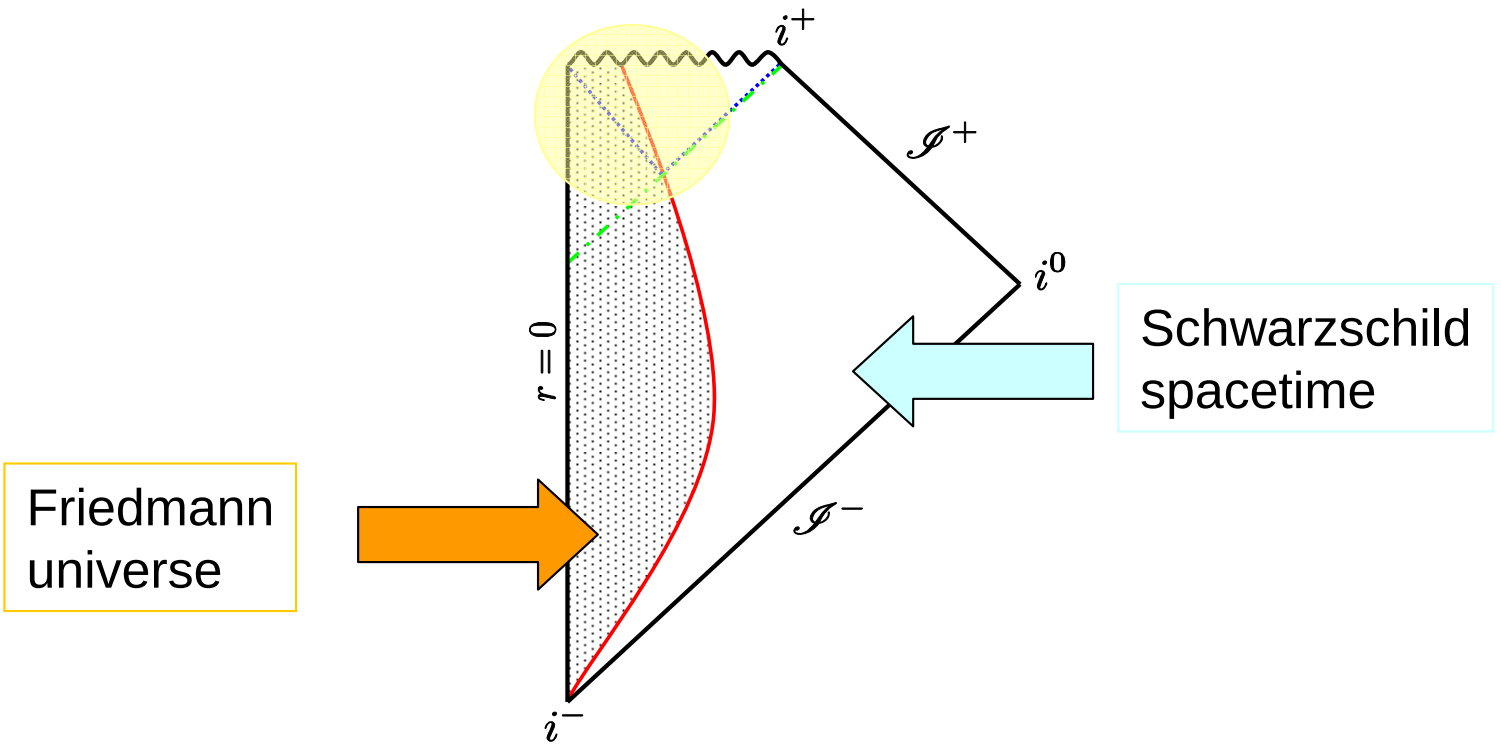
The standard approach to spherical gravitational collapse is **a junction of the two different spacetimes** corresponding to the interior and exterior regions of the collapsing body.




One can not describe the dynamics of the collapsing body in terms of the coordinates of the observer outside the horizon.

We use **the Painlevé-Gullstrand coordinates** to describe the both regions inside and outside the horizon **by a single coordinate system**.

- The time coordinate is the proper time of the free-falling observer.

- The metric is directly related to the infall velocity.

- The metric components is not singular at the Schwarzschild radius.

We introduce a generalized PG metric and construct an exact solution for the spherical gravitational collapse.