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Gravitational radiation and angular momentum flux from a spinning dynamical black hole



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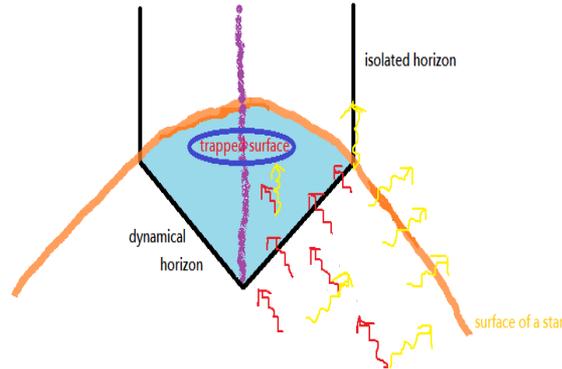
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1. Introduction

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Outgoing radiation and incoming radiation
from gravitational collapse of a star.
Dynamical horizon will form during collapse.

 : outgoing radiation

 : incoming radiation

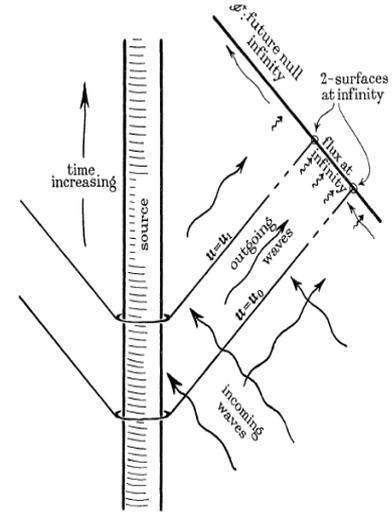


FIGURE 1. Quantities may be defined by 2-surface integrals at infinity on $u = \text{const}$. If such a quantity is to contain no contribution from *outgoing* waves, then the integral must be independent of u .



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2. Conclusion

- Outgoing wave makes no contribution.
- A physical reasonable energy flux implies the shear σ_0 term decrease with time from our framework.
- For the late time behavior of shear, it vanishes after infinite time.
- Black hole cannot eat infinite amount of gravitational energy when there is no other gravitational source near it.



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