

Internal shock model for Prompt GRBs

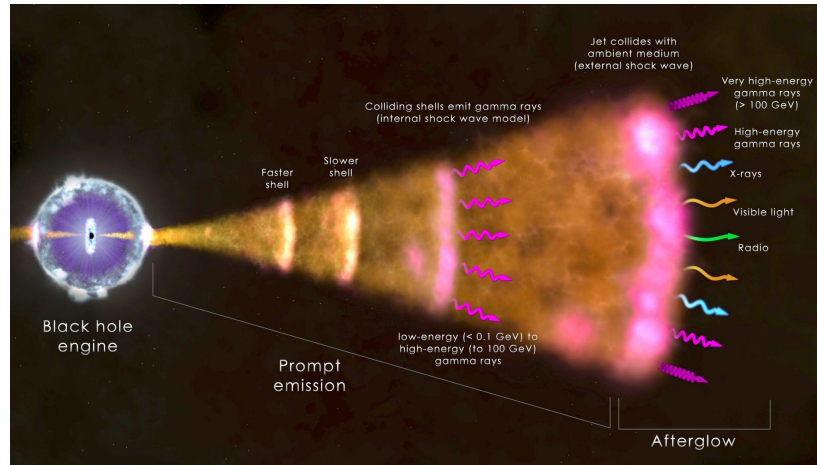
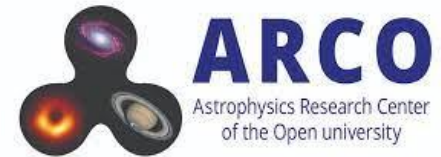


Image credit: NASA/Goddard Space Flight Center/ICRAR.

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Transient Universe 2023

The Big Picture

Fast flowing material catches up with slower material

Blazars

Rees 1978

Superluminous Supernovae (SLSNe)

Moriya et al. 2018

Fast Radio Burst (FRB)s

Metzger et al. 2019

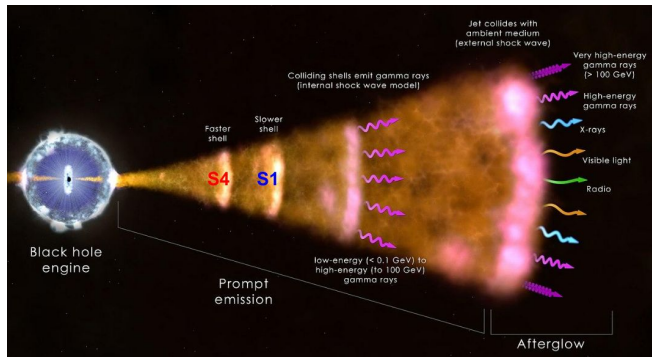
Deceleration of Magnetar Giant flares

Granot et al. 2006

Gamma-ray Burst (GRB)s

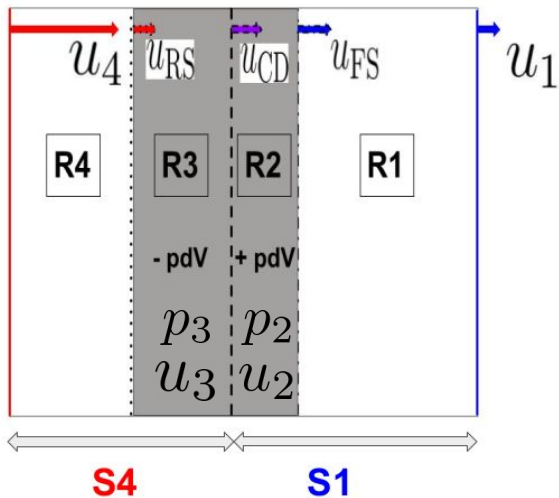
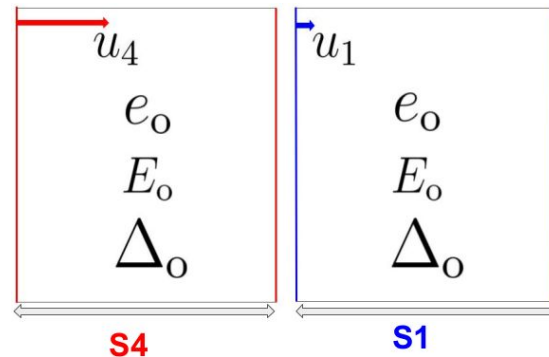
Rees & Meszaros 1994

Two cold shell collision

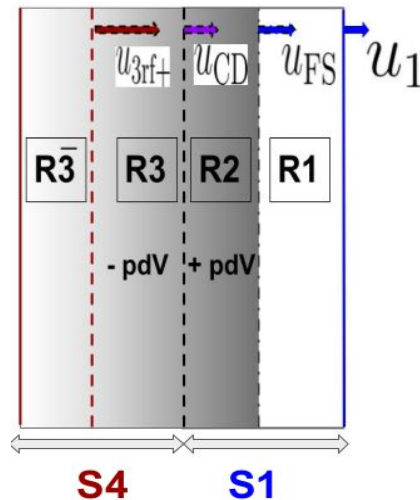


$$u_4 = 500 \quad u_1 = 100$$

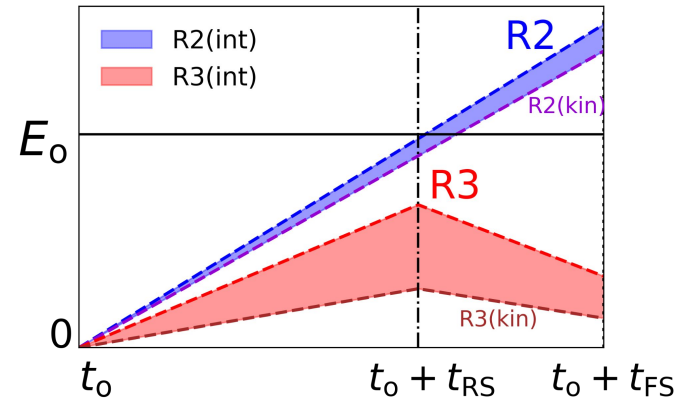
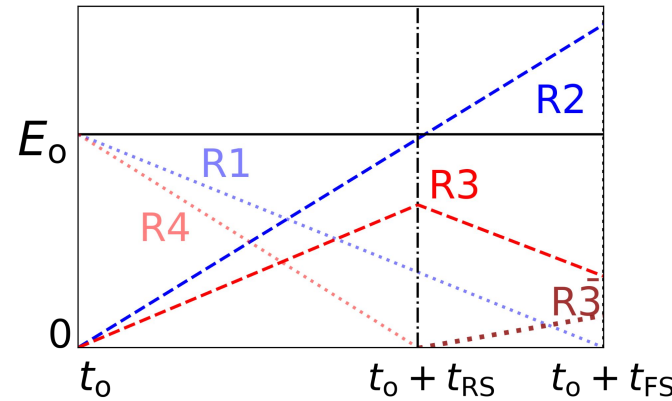
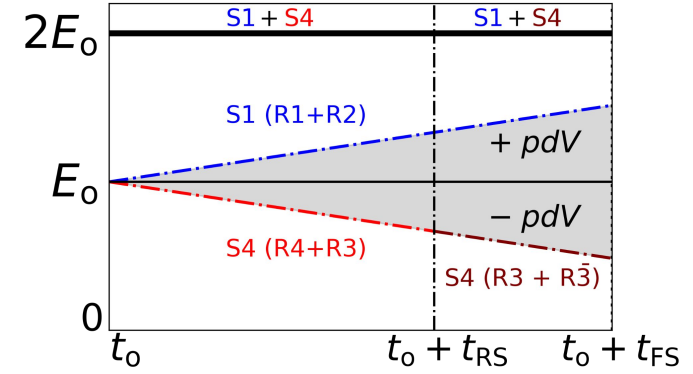
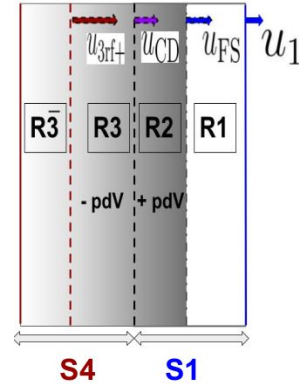
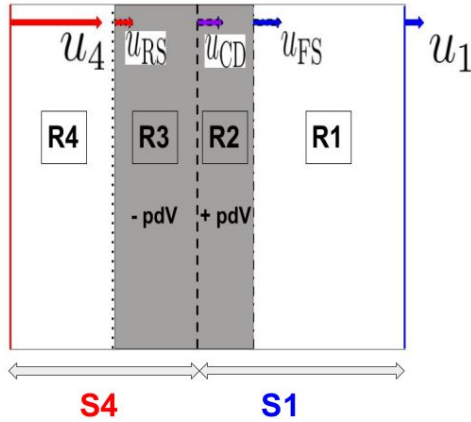
$$u = \Gamma\beta \gg 1$$



$$t_{FS} = 1.67 t_{RS}$$



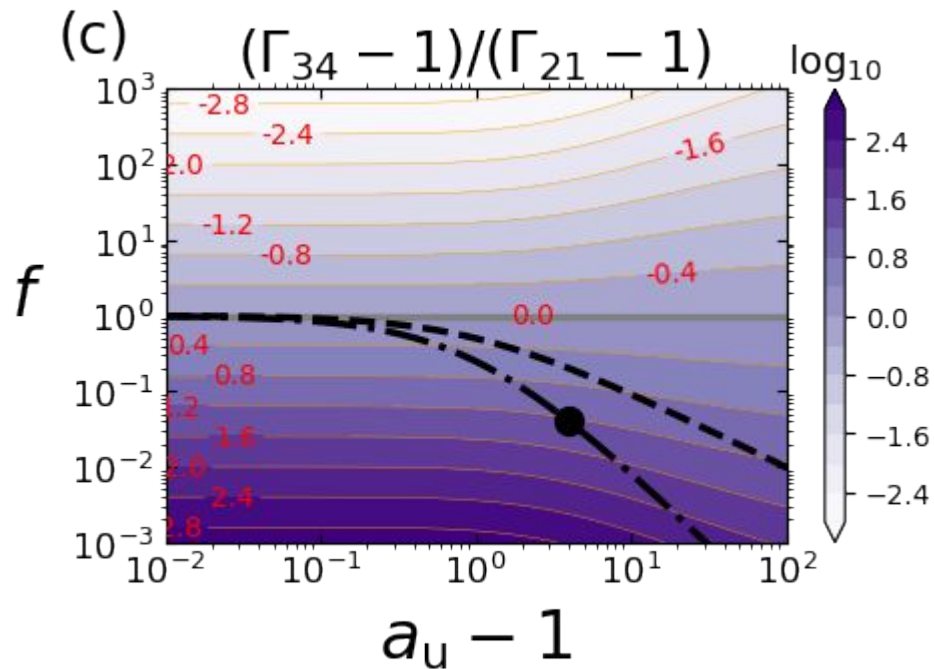
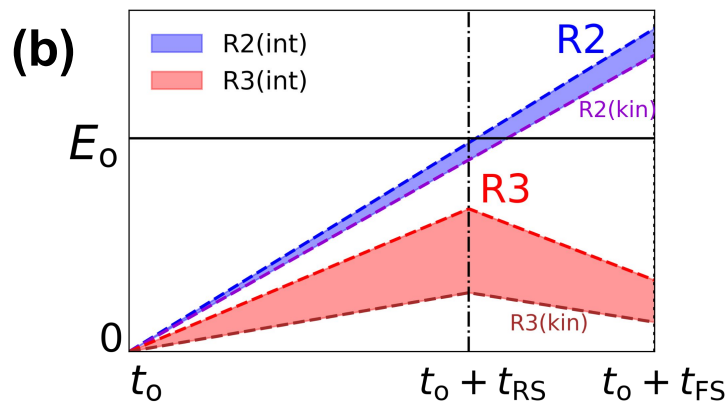
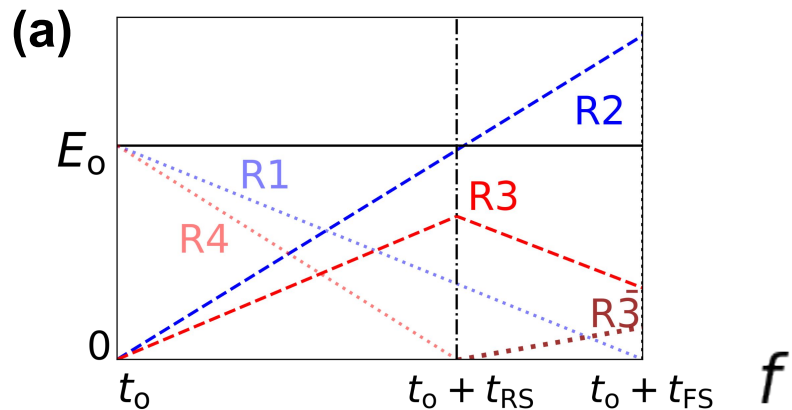
Tracking internal energy dissipation



Relativistic reverse shock a good candidate for prompt gamma-ray emission.

Rahaman et al. (in prep)

Tracking internal energy dissipation



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