

**Jet-ISM shock (afterglow)**

Optical (hours-days)

Radio (weeks-years)

**GRB**

( $t \sim 0.1-1$  s)

$\theta_{\text{obs}}$

**Merger ejecta**

Tidal tail and disk wind

$v \sim 0.1-0.3 c$

**Kilonova**

Optical ( $t \sim 1$  day)

**Ejecta-ISM shock**

Radio (years)

**BH**

$\theta_j$

