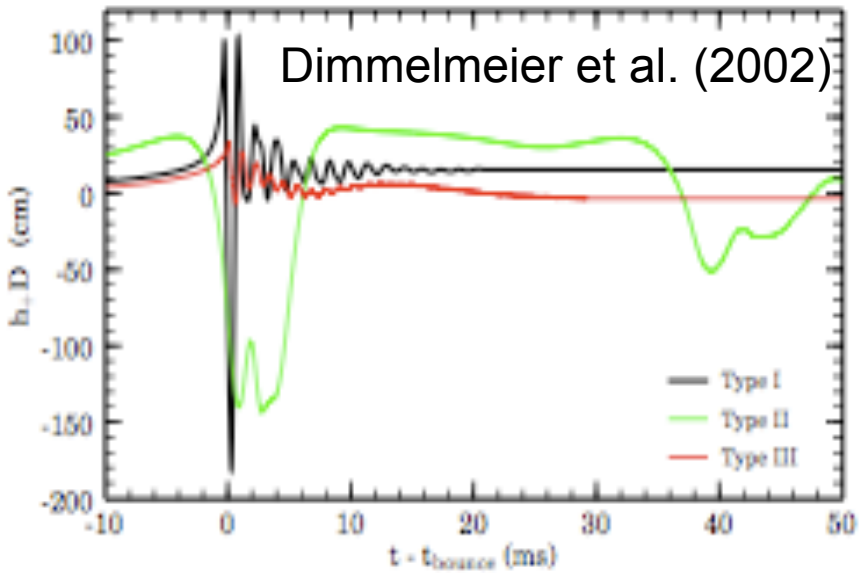
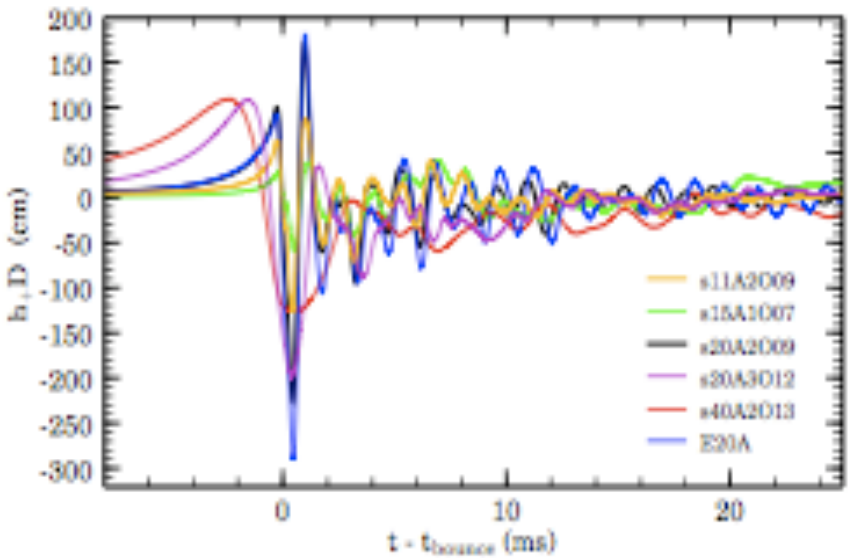
バウンス起源のバースト型重力波



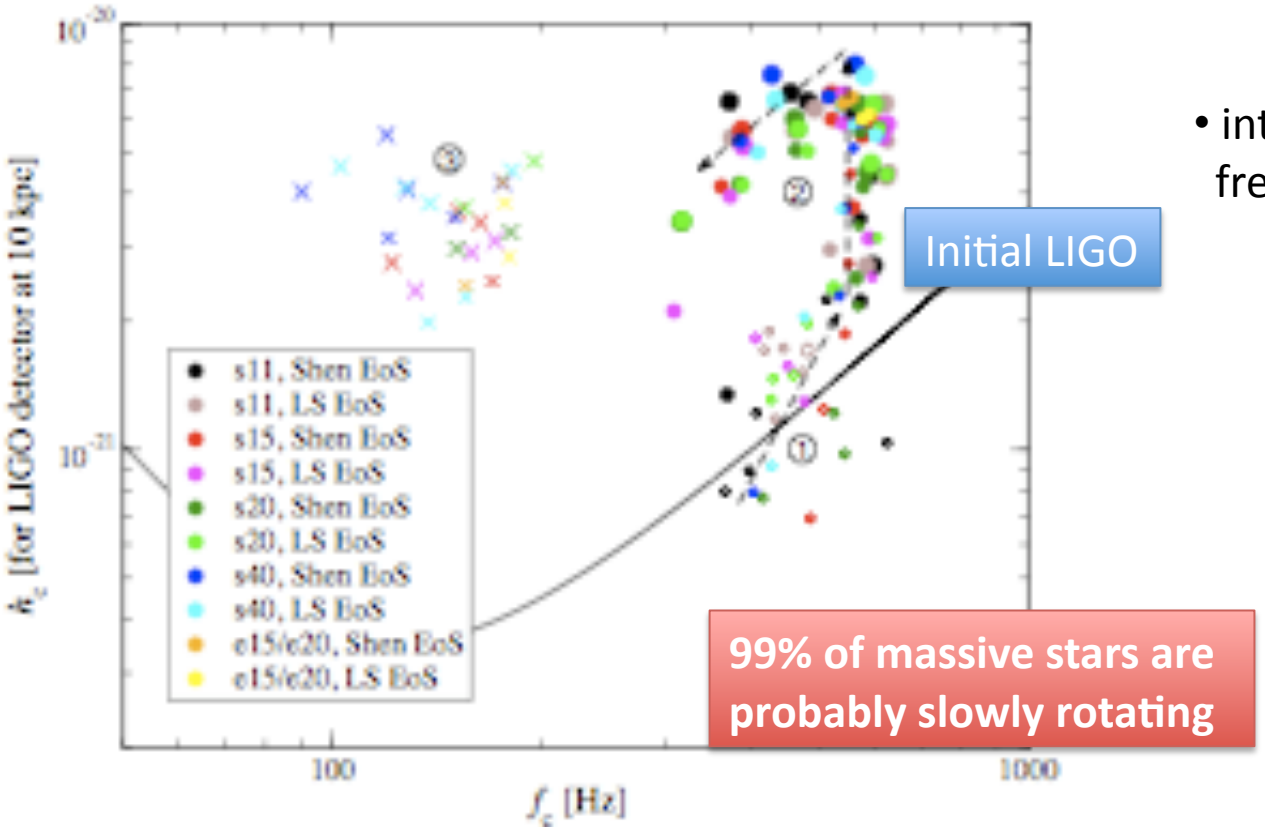
Type II : GRの効果で、type II は現れにくい。
Dimmelmerieret al. 09

Type III : 現実的EOSは、
そんなに柔らかくない
Kotakeet al. 04

Ott (2009)



Dimmelmeier, Ott, Marek, and Janka, PRD 78, 064056 (2008).



- integrated characteristic signal frequency and amplitude :

$$f_c = \left(\int_0^\infty \frac{\langle \hat{h}^2 \rangle}{S_h} f\,df\right)\left(\int_0^\infty \frac{\langle \hat{h}^2 \rangle}{S_h} df\right)^{-1}$$

$$\hat{h} = \int_{-\infty}^{\infty} e^{2\pi i f t} h\,dt.$$

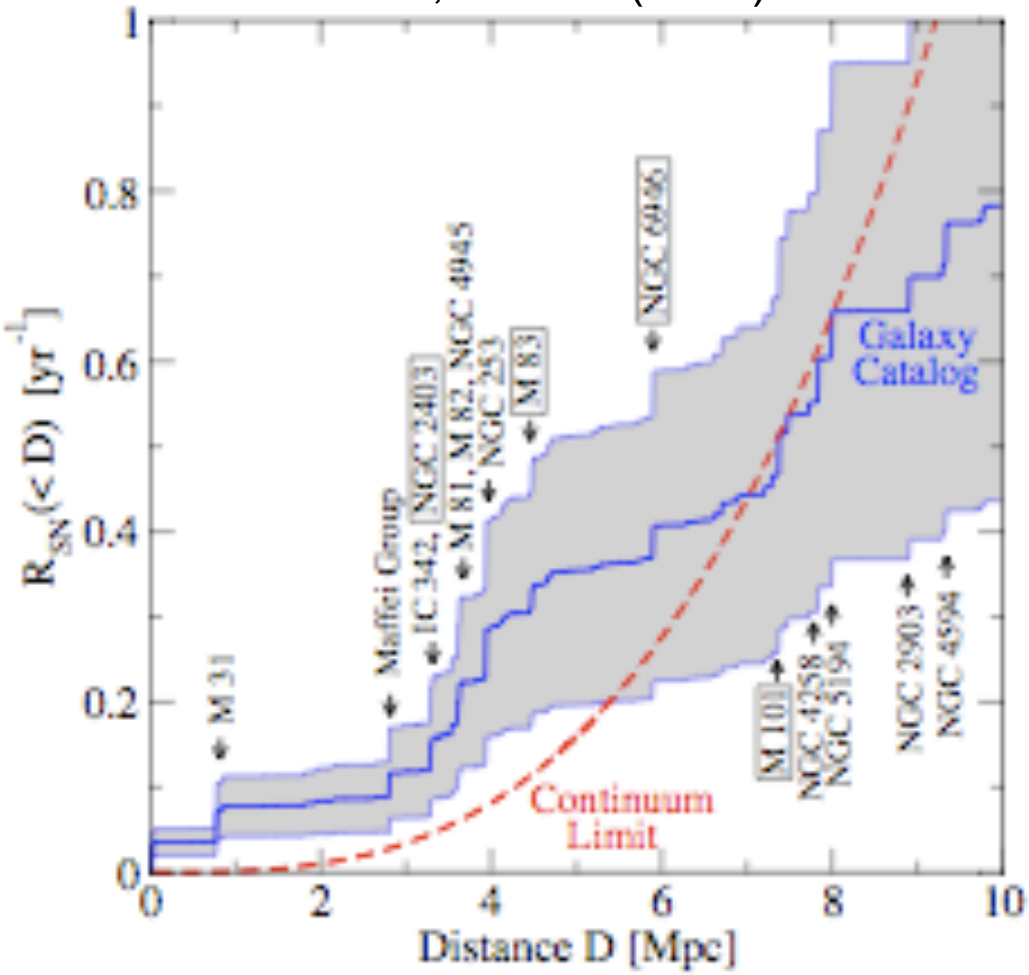
$$h_c = \left(3\int_0^\infty \frac{S_{hc}}{S_h} \langle \hat{h}^2 \rangle f\,df\right)^{1/2},$$

Group	$\Omega_{c,i}$ (rad s^{-1})	$\lvert h_{max} \rvert$ (10^{-21} at 10 kpc)	E_{GW} ($10^{-8} M_\odot c^2$)	f_{peak} (Hz)	Δf_{50} (Hz)
1	$\lesssim$ 1–1.5	$\lesssim$ 0.5	$\lesssim$ 0.1	$\sim$ 700–800	$\sim$ 400
2	1–2 to 6–13	0.5 to 10	0.1 to 5	$\sim$ 400–800 most models: 700-800	100 to 400
3	$\gtrsim$ 6–13	3.5 to 7.5	0.07 to 0.5	70 to 200	80 to 250

$\Omega_{c,i}$: precollapse central angular velocity

Nearby core-collapse supernova rate

S. Ando et al. PRL **95**, 171101 (2005)



Galactic SN rate ~ 1 in 40 years.
Local group ~ 2 in 40 years.

Need to go out to 3-5 Mpc where rate jumps to 1 in 2 years.