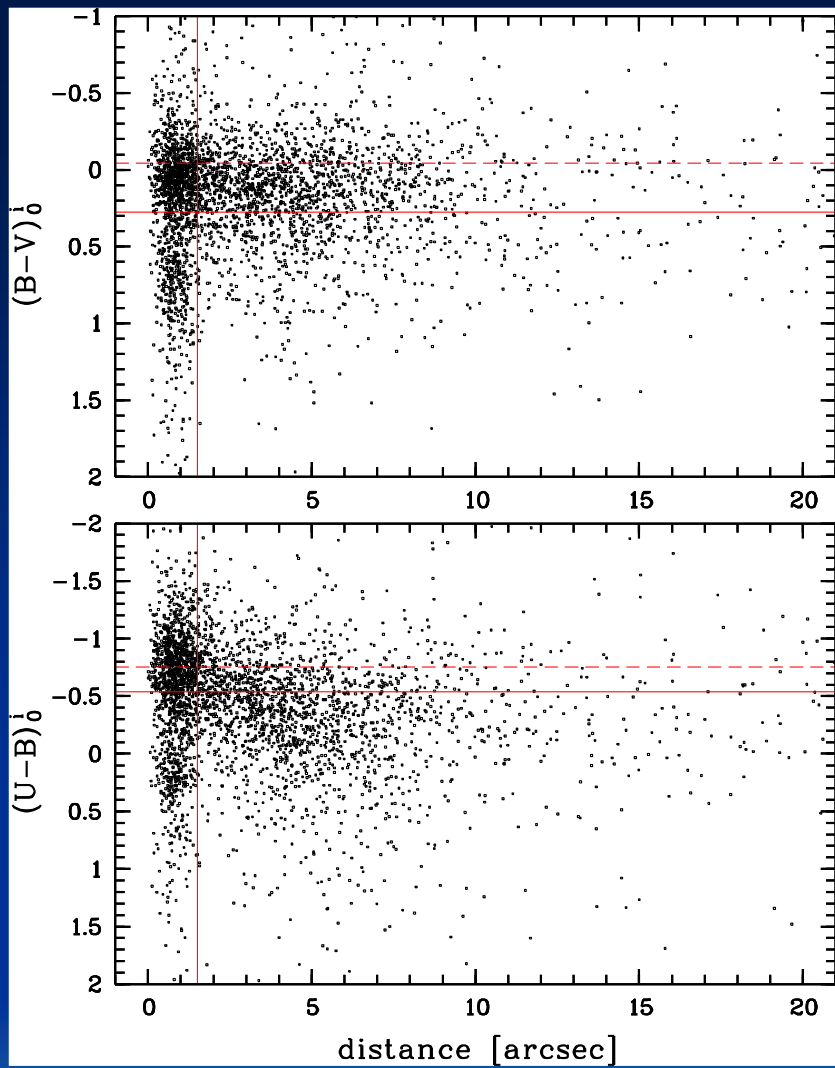


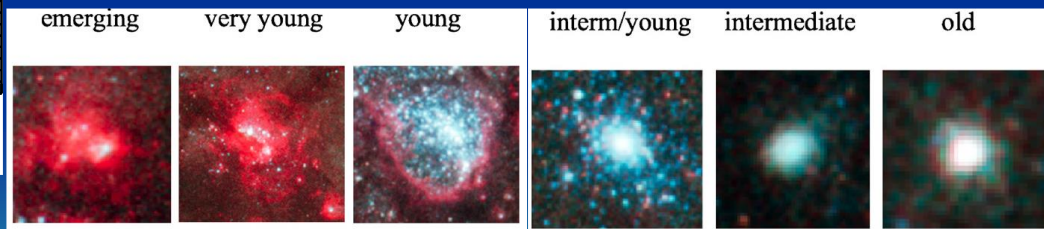
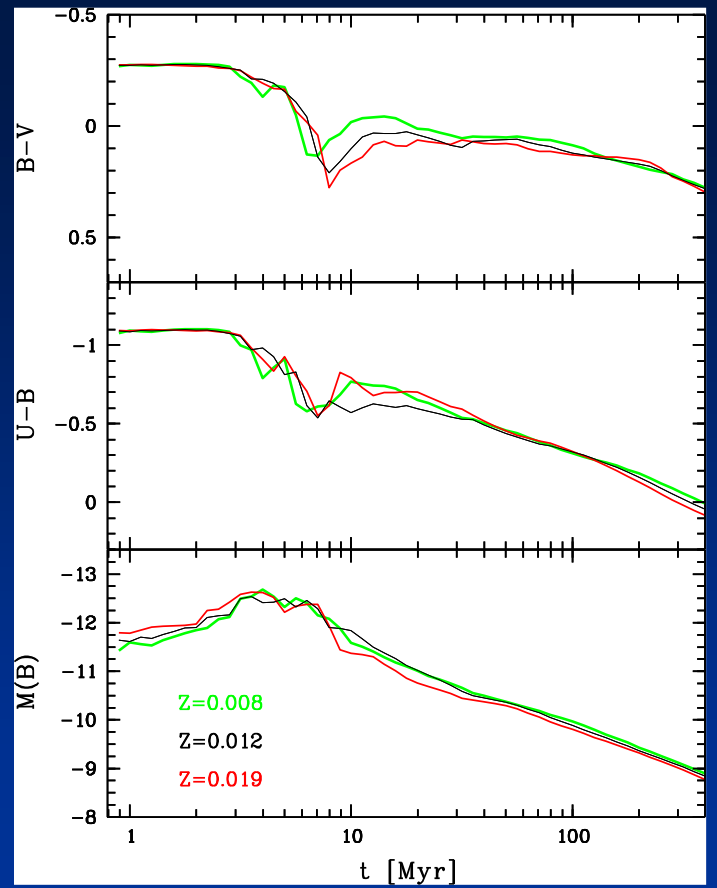
# Волна звёздообразования на субкилопарсековых масштабах

А.С. Гусев



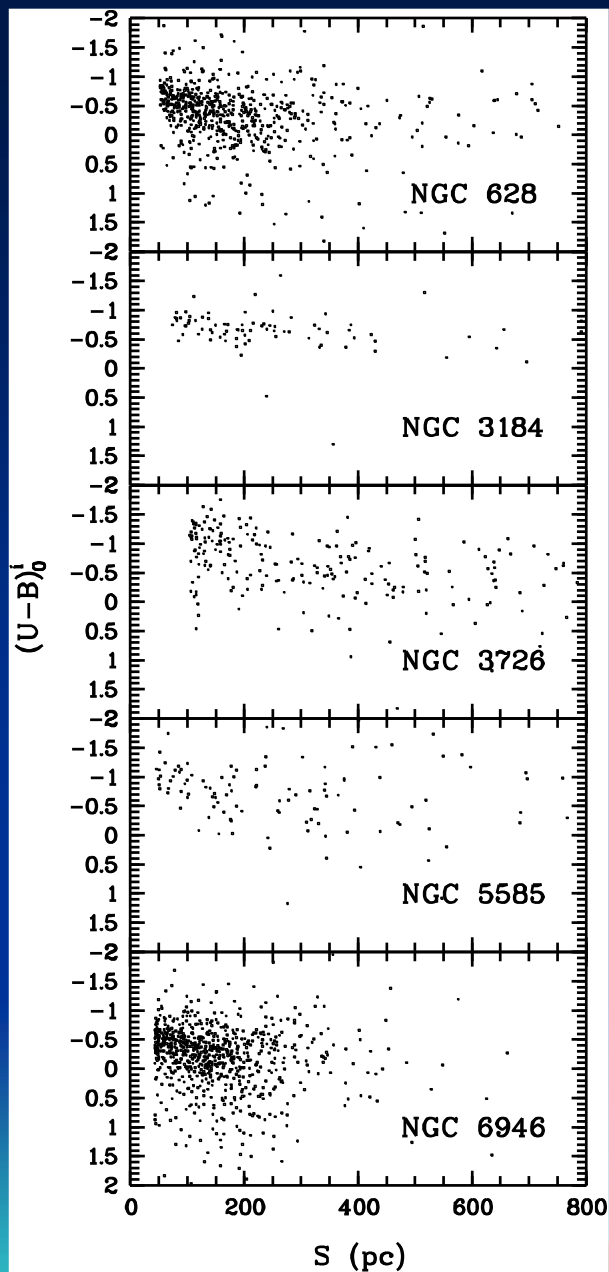


Gusev+18



Whitmore+11

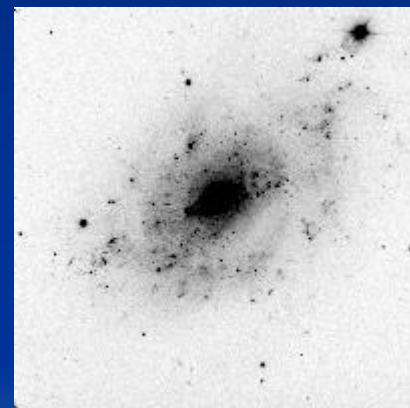
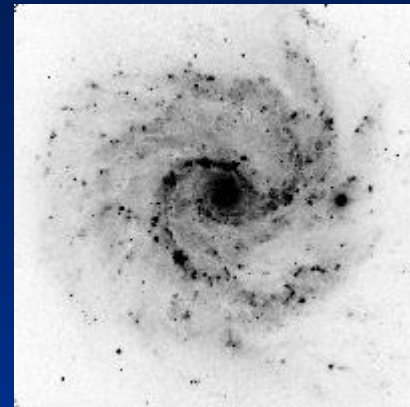
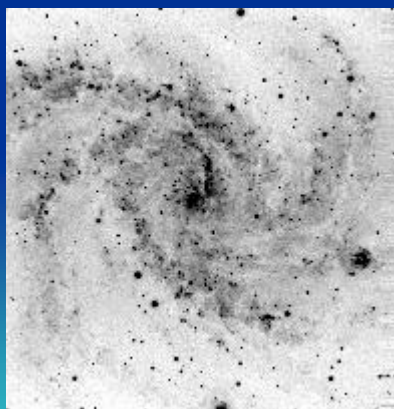
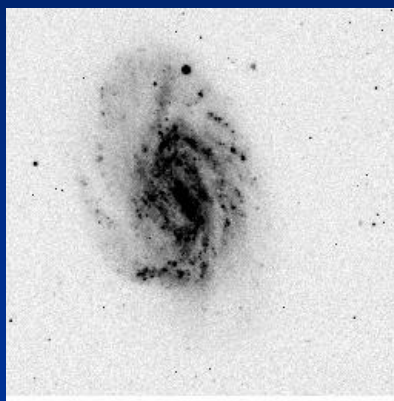
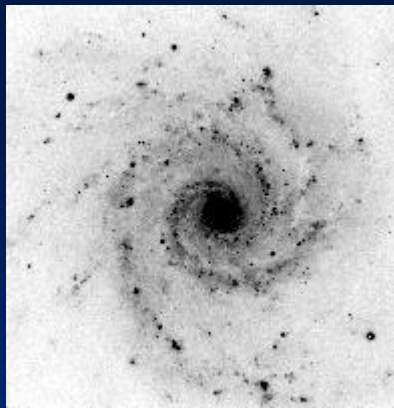
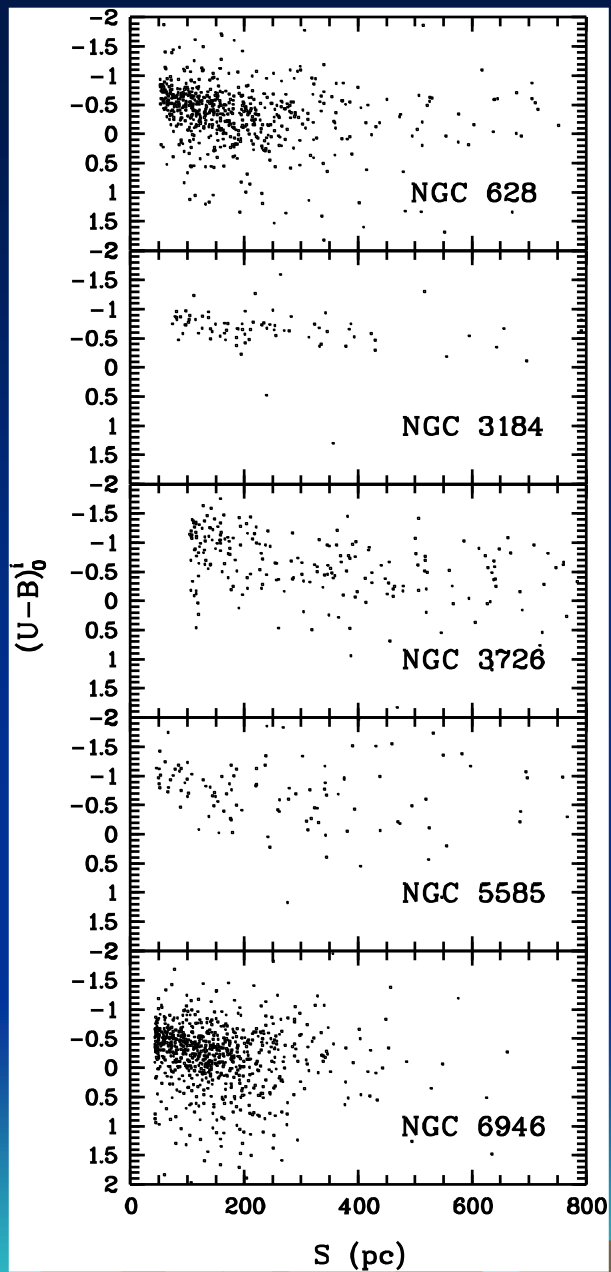




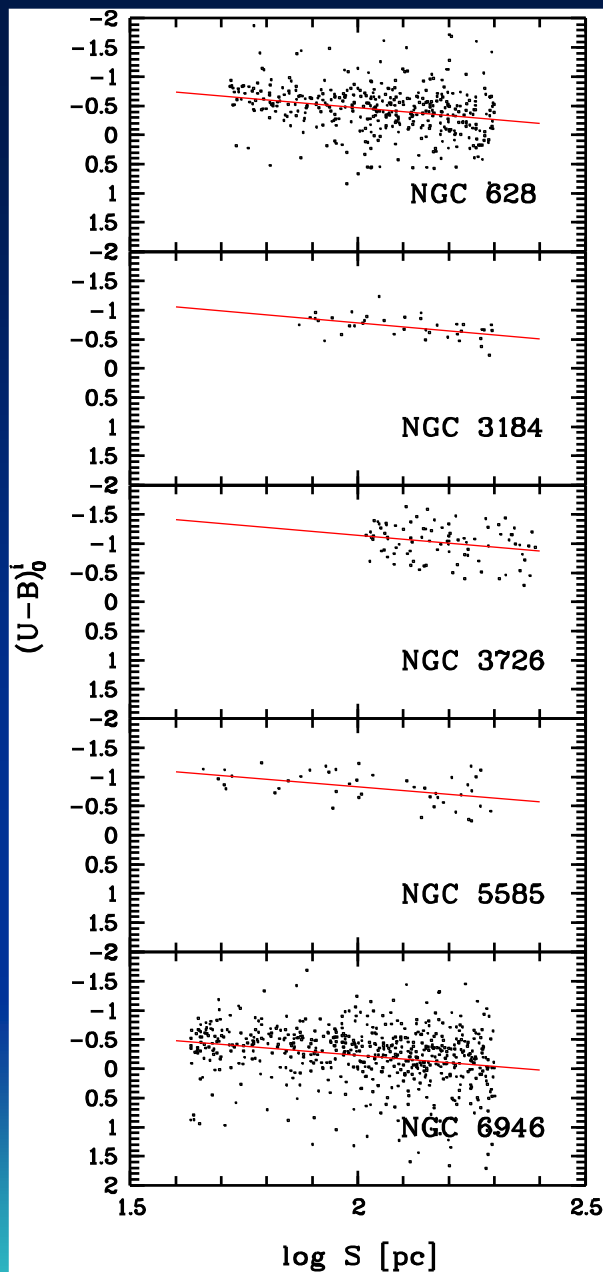
Galaxy	Type	$B_t$ (mag)	$M_B^c$ (mag)	$i$ (degree)	PA (degree)	$R_{35}^b$ (arcmin)	$R_{35}^b$ (kpc)	$D$ (Mpc)	$A(B)_{Gal}$ (mag)	$A(B)_{lin}$ (mag)	Data <sup>c</sup>
1	2	3	4	5	6	7	8	9	10	11	12
NGC 245	SA(rs)b	12.72	-21.12	21	145	0.62	9.6	53.8	0.097	0.04	Ph
NGC 266	SB(rs)ab	12.27	-21.94	15	95	1.55	28.7	63.8	0.252	0.01	Ph+Ha
NGC 628	SA(s)c	9.70	-20.72	7	25	5.23	11.0	7.2	0.254	0.04	Ph+Ha+Sp
NGC 783	Sc	13.18	-22.01	43	57	0.71	14.6	70.5	0.222	0.45	Ph+Sp
NGC 2336	SAB(r)bc	11.19	-22.14	55	175	2.51	23.5	32.2	0.120	0.41	Ph+Ha+Sp
NGC 3184	SAB(rs)cd	10.31	-19.98	14	117	3.79	11.3	10.2	0.060	0.02	Ph+Ha+Sp
NGC 3726	SAB(r)c	10.31	-20.72	49	16	2.62	10.9	14.3	0.060	0.30	Ph+Ha+Sp
NGC 4136	SAB(r)c	11.92	-18.38	22	30	1.20	2.8	8.0	0.066	0.05	Ph+Sp
NGC 5351	SA(r)b	12.57	-21.16	60	101	1.20	17.8	51.1	0.074	0.40	Ph+Sp
NGC 5585	SAB(s)d	10.94	-18.73	53	34	2.13	3.5	5.7	0.057	0.38	Ph+Ha+Sp
NGC 5605	(R)SAB(rs)c	12.58	-20.86	36	65	0.81	10.6	44.8	0.318	0.15	Ph
NGC 5665	SAB(rs)c	12.25	-20.42	53	151	0.95	8.6	31.1	0.091	0.35	Ph
NGC 6217	(R)SB(rs)bc	11.89	-20.45	33	162	1.15	6.9	20.6	0.158	0.22	Ph+Ha+Sp
NGC 6946	SAB(rs)cd	9.75	-20.68	31	62	7.74	13.3	5.9	1.241	0.04	Ph+Ha+Sp
NGC 7331	SA(s)b	10.20	-21.68	75	169	4.89	20.1	14.1	0.331	0.61	Ph+Ha+Sp
NGC 7678	SAB(rs)c	12.50	-21.55	44	21	1.04	14.5	47.8	0.178	0.23	Ph+Sp
NGC 7721	SA(s)c	11.11	-21.18	81	16	1.51	11.6	26.3	0.121	0.98	Ph
IC 1525	SBb	12.51	-21.89	48	27	0.97	19.7	69.6	0.410	0.24	Ph
UGC 11973	SAB(s)bc	13.34	-22.47	81	39	1.73	29.7	58.8	0.748	0.85	Ph

5 галактик с  $D < 15$  Мпк и  $i < 60^\circ$

Галактики были развернуты в положение «плашмя»  
Пары – пересчитаны



**< 200-250 пк**



NGC 628

$$\log t = (0.666 \pm 0.127) \log S - (1.80 \pm 0.26)$$

NGC 3184

$$\log t = (0.683 \pm 0.203) \log S - (2.15 \pm 0.42)$$

NGC 3726

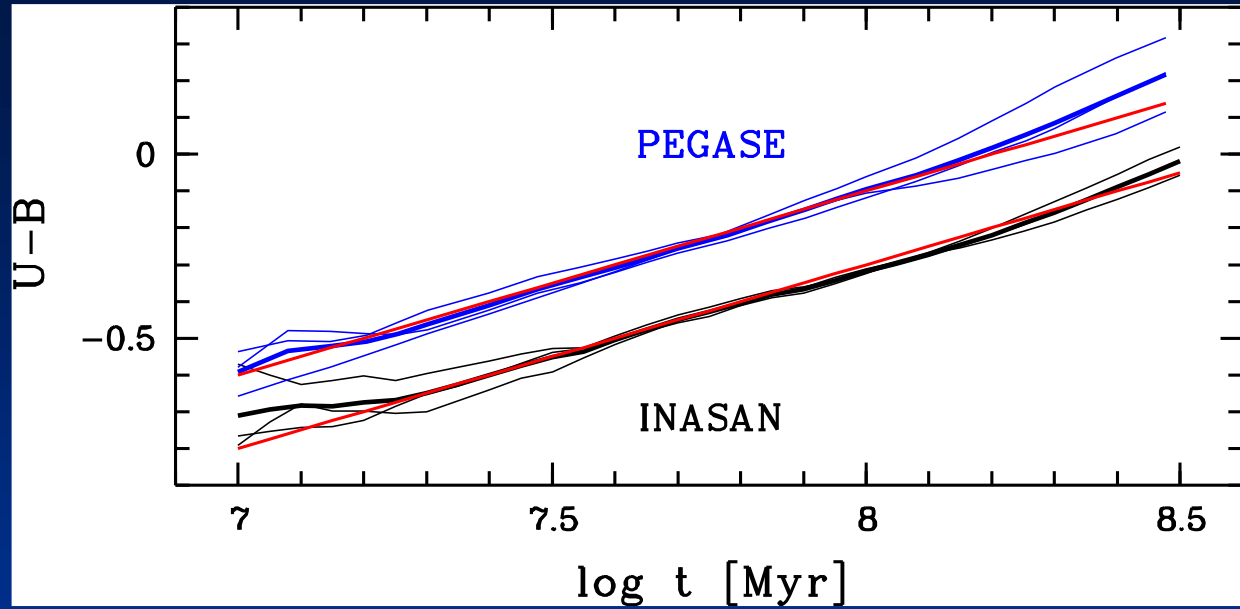
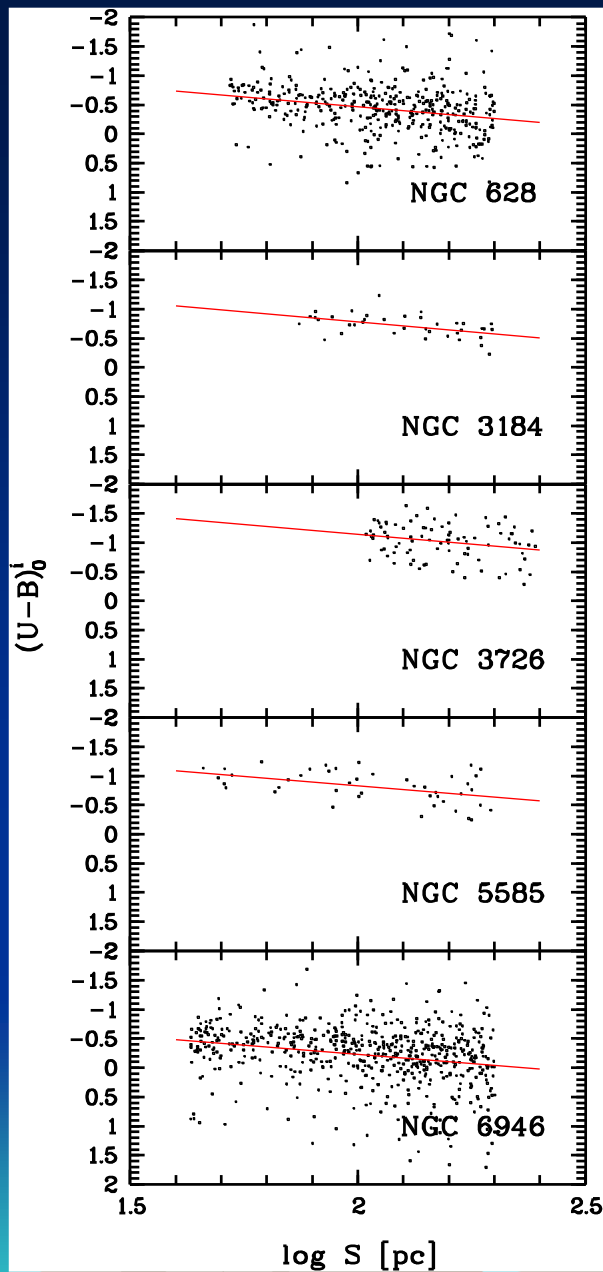
$$\log t = (0.680 \pm 0.284) \log S - (2.50 \pm 0.62)$$

NGC 5585

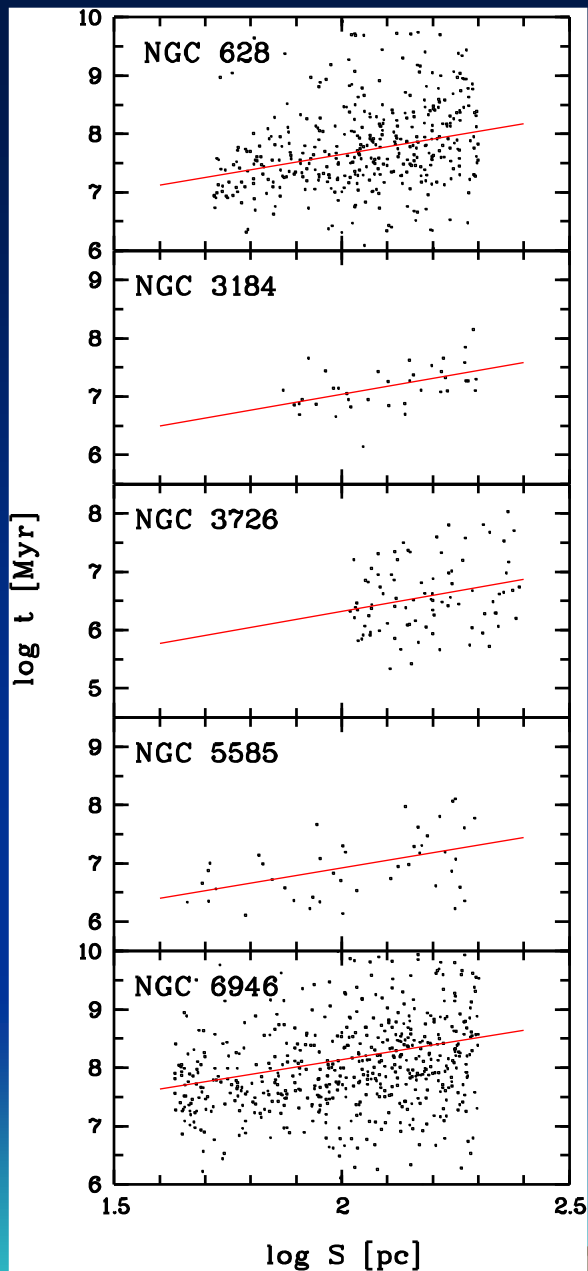
$$\log t = (0.653 \pm 0.191) \log S - (2.14 \pm 0.39)$$

NGC 6946

$$\log t = (0.628 \pm 0.106) \log S - (1.49 \pm 0.21)$$



**$\log t \sim 0.5 \log t + \text{const} !$**



NGC 628

$$\log t = (1.33 \pm 0.25) \log S + (4.99 \pm 0.52)$$

NGC 3184

$$\log t = (1.37 \pm 0.41) \log S + (4.30 \pm 0.86)$$

NGC 3726

$$\log t = (1.36 \pm 0.57) \log S + (3.60 \pm 1.24)$$

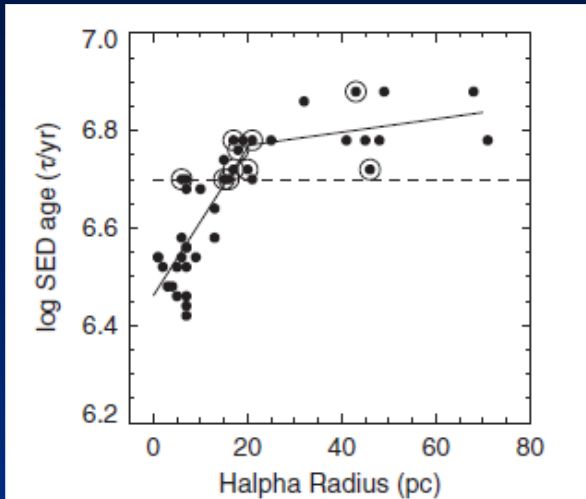
NGC 5585

$$\log t = (1.31 \pm 0.38) \log S + (4.30 \pm 0.78)$$

NGC 6946

$$\log t = (1.26 \pm 0.21) \log S + (5.62 \pm 0.43)$$

**PEGASE: const-0.4**



**Whitmore+11**

$$\log t = (1.33 \pm 0.25) \log 20 + (4.99 \pm 0.52) = 6.72 \quad (6.76!)$$

$$\log t [\text{Myr}] = 1.33 \log S [\text{pc}] - (1 \pm 1)$$

$$\log \Delta t (\text{yr}) = 7.48 + 0.33 \log S (\text{deg}), \quad (1-100 \text{ Myr})$$

$$\log \Delta t (\text{yr}) = 7.49 + 0.38 \log S (\text{deg}), \quad (10-100 \text{ Myr})$$

$$\Delta t (\text{Myr}) \sim 3.3 S (\text{pc})^{0.33}$$

$$t [\text{Myr}] = S [\text{pc}]^{1.33-0.1} \quad (0.01-1)$$

**Efremov & Elmegreen 98**



$$t \text{ [Myr]} = S \text{ [pc]}^{1.33} \cdot 0.1 \quad (0.01-1)$$

$$S \text{ [pc]} = t \text{ [Myr]}^{0.75} \cdot 5.6 \quad (1-32)$$

$$V \text{ [km/s]} = V \text{ [pc/Myr]} = dS/dt = t \text{ [Myr]}^{-0.25} \cdot 4.2 \quad (0.75-24)$$

$$V_0 \approx 4 \pm \text{ km/s}$$

$$V \sim t^{-0.25}$$

$$V \sim S^{-0.33}$$

$$S \sim 20-250 \text{ pc}$$

$$t \sim 10-200 \text{ Myr}$$

