Multiple Populations in Young Clusters

A&A 586, A148 (2016)

Controversial age spreads from the main sequence turn-off and red clump in intermediate-age clusters in the LMC*

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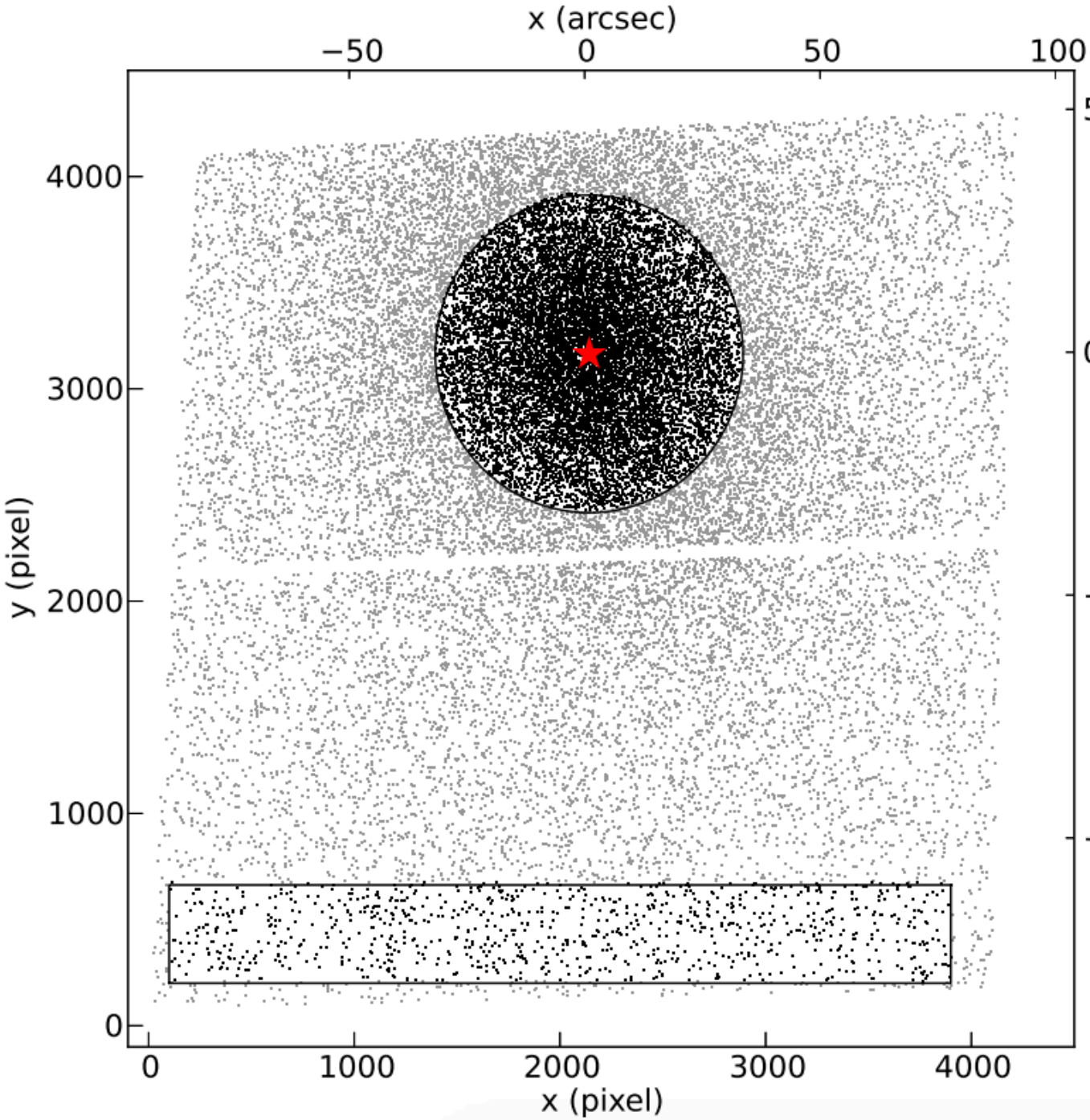
Presenter: Ned Molter

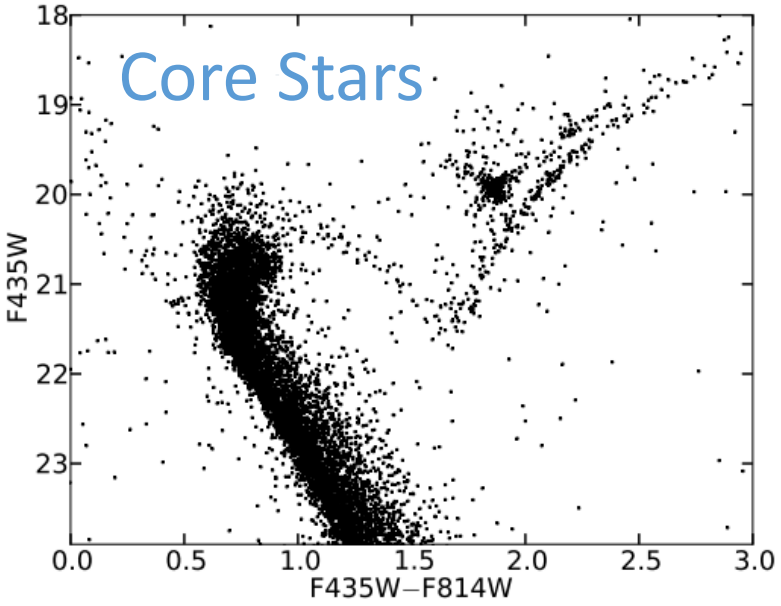
10/12/16

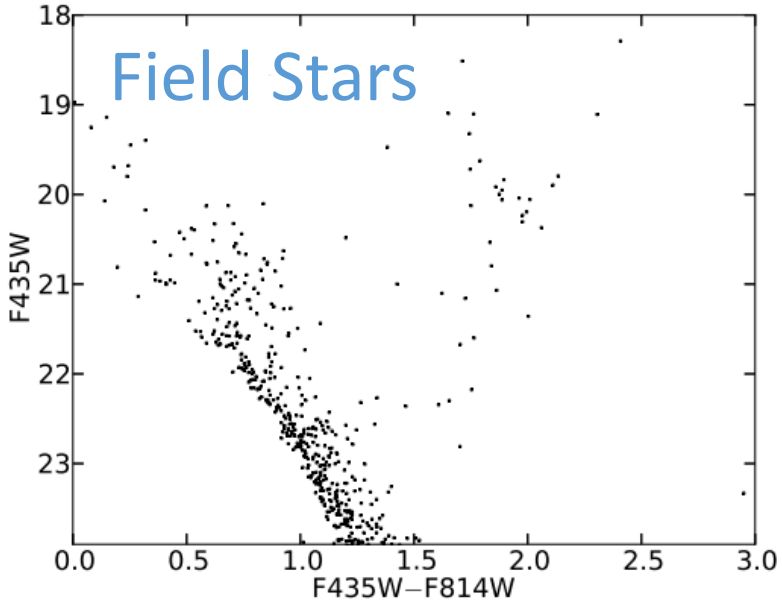


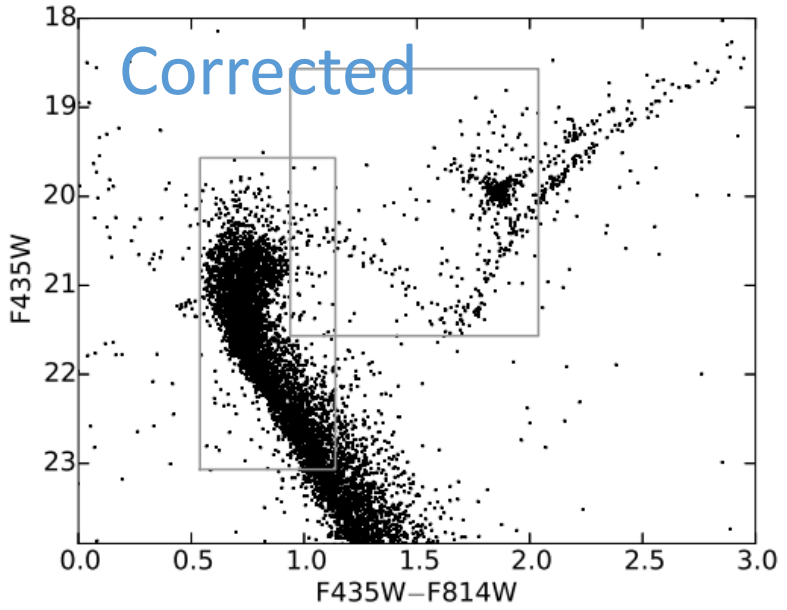
Cluster core

Used for field star subtraction

NGC 1783

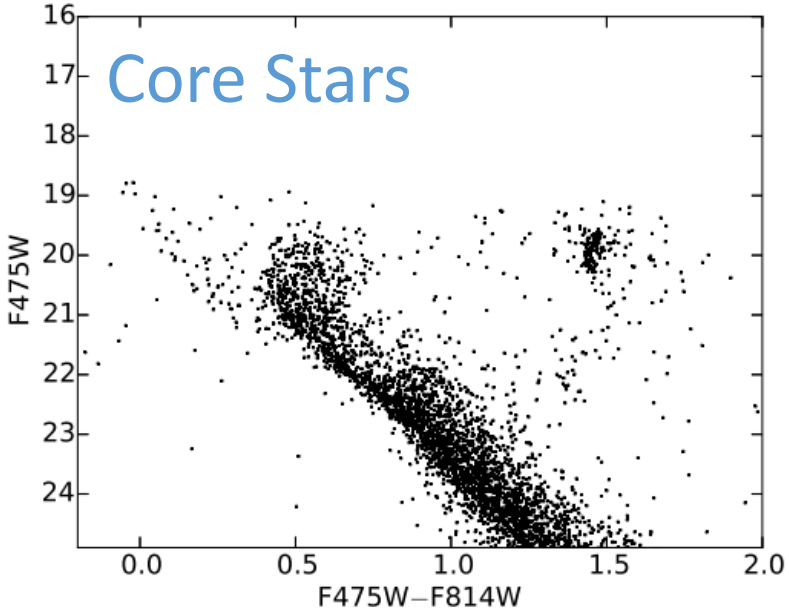


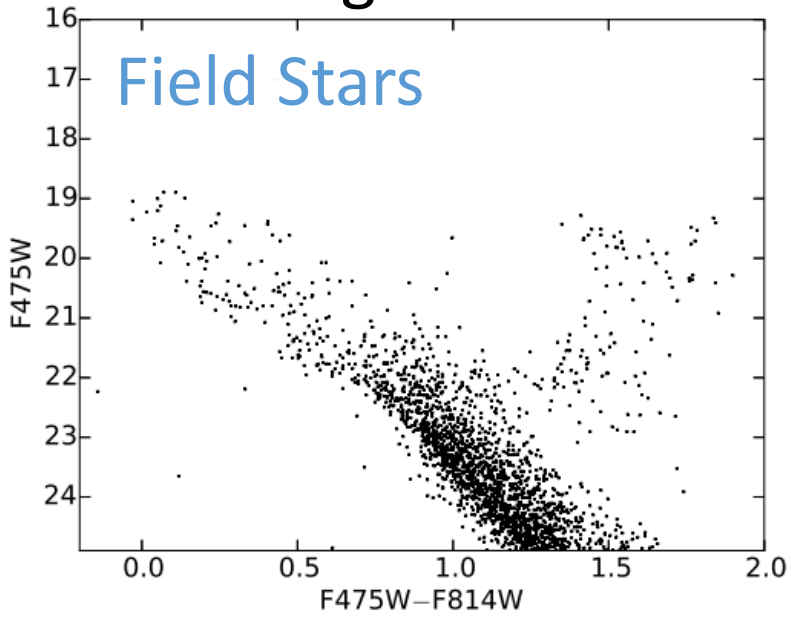


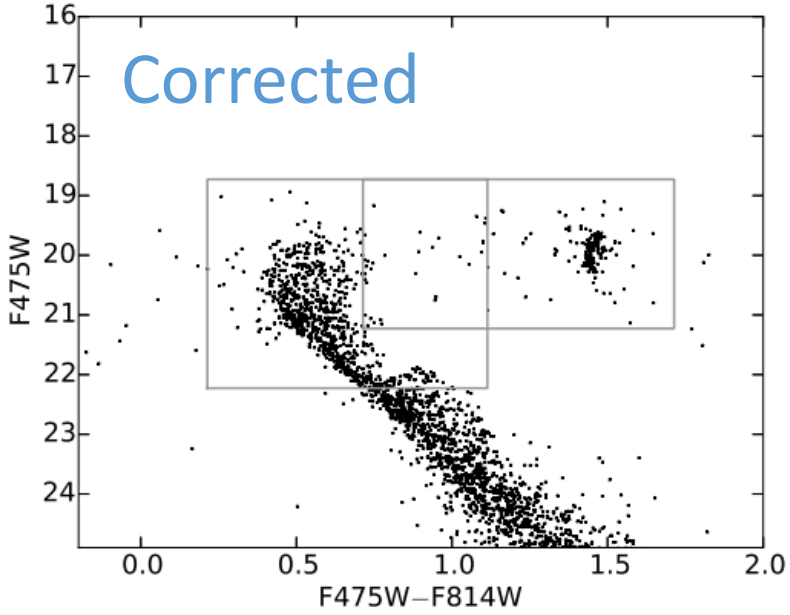


*Boxes denote where fits performed

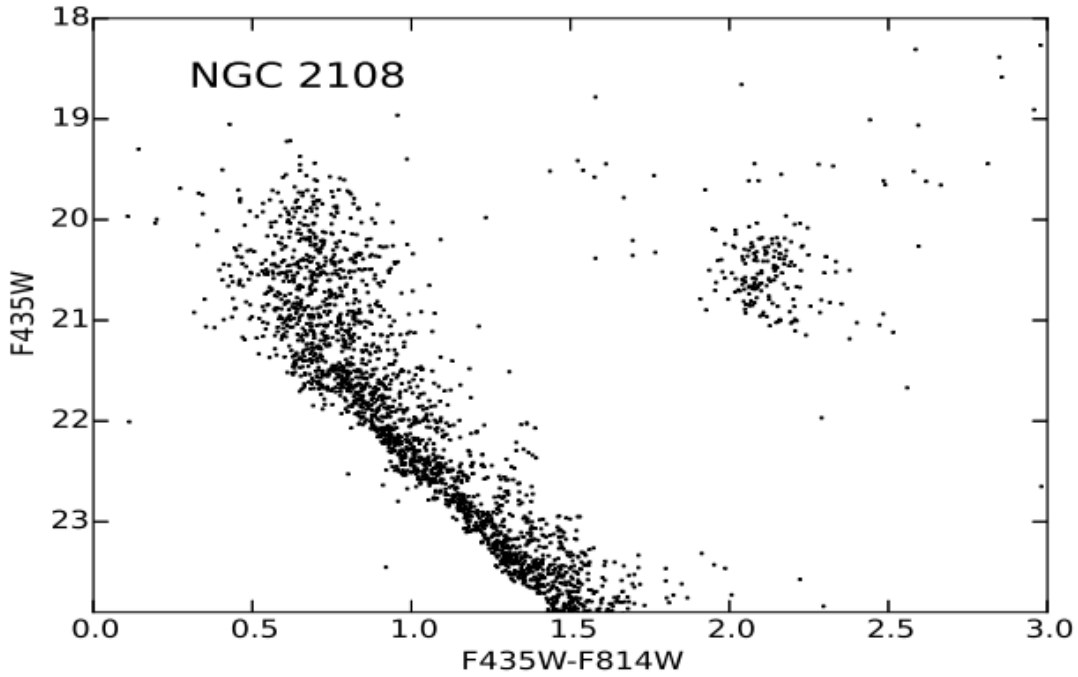
Hodge 2



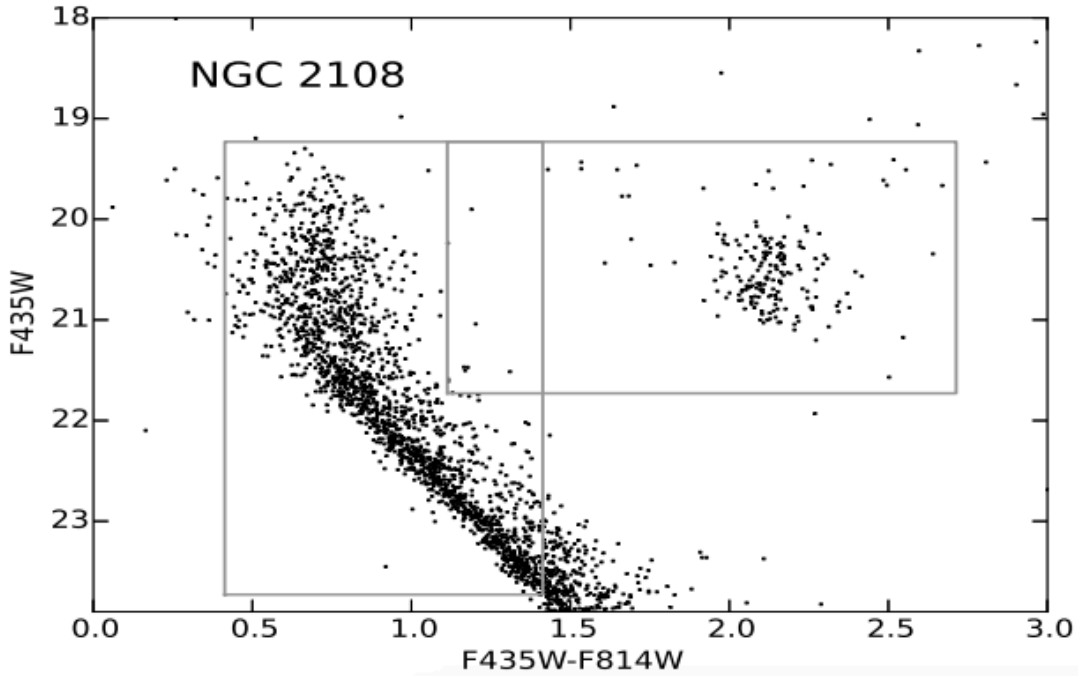




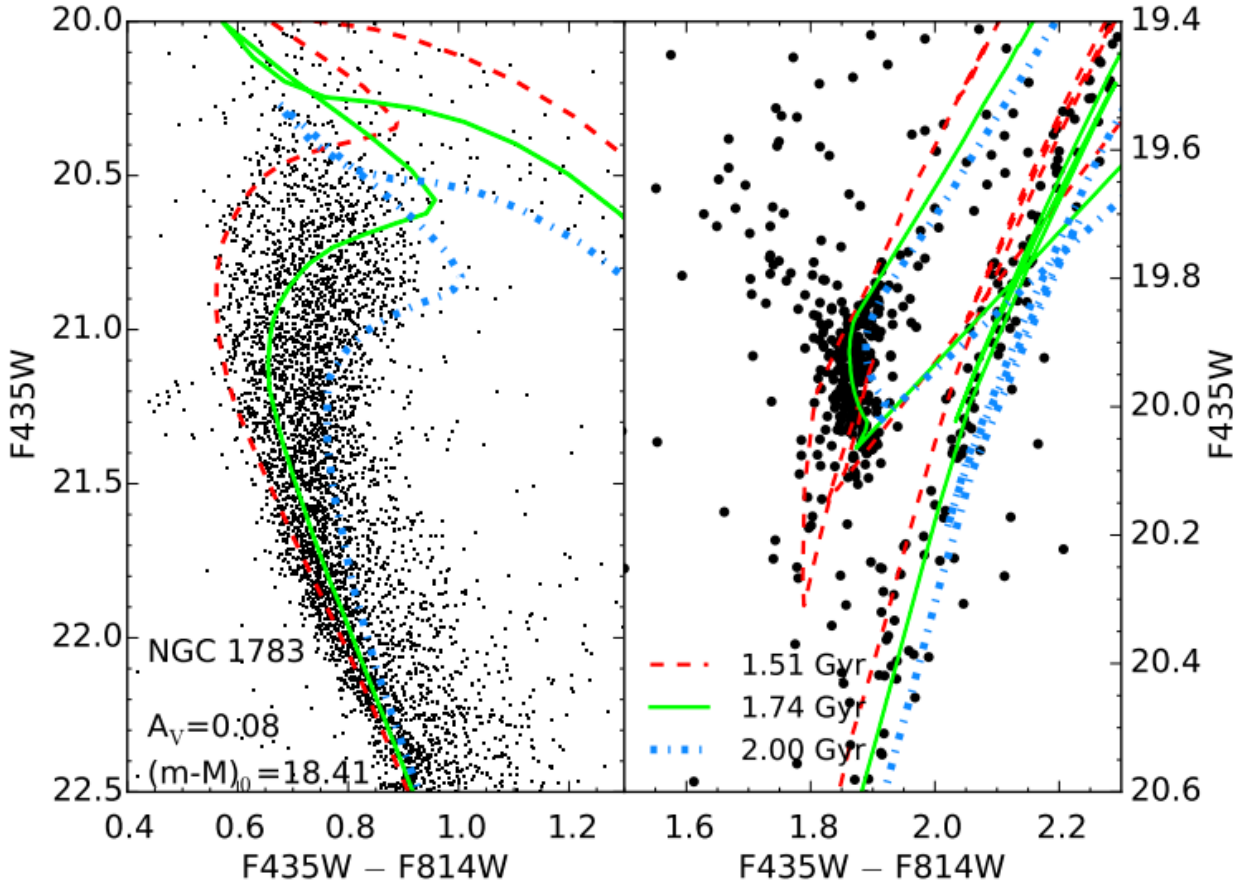
Cluster (1)	R_{core}(arcsec) (2)	R_{tidal}(arcsec) (3)	Z (4)	A_V (5)	$(m-M)_0$ (6)	Age (Gyr) (7)	ΔAge_{RC} (Myr) (8)
NGC 1783	36.7	346.8[2]	0.008	0.08	18.41	1.75	~500
LW 431	25.0	185.9[2]	0.008	0.20	18.40	1.75	~300
NGC 1987	23.2	270[2]	0.008	0.16	18.37	1.15	<80
NGC 2203	32.9[1]	161.2[1]	0.008	0.19	18.41	1.75	~200
NGC 1718	15.4[1]	114.0[1]	0.008	0.53	18.54	1.75	<100
NGC 1651	18.8[1]	545.2[1]	0.008	0.23	18.48	2.00	~200
NGC 2213	11.1[1]	66.6[1]	0.008	0.16	18.40	1.75	~200
NGC 2173	14.5[1]	165.3[1]	0.008	0.23	18.37	1.70	~400
Hodge 2	11.0[1]	473[1]	0.008	0.19	18.45	1.45	~400
NGC 2108	24.2	132.8[2]	0.008	0.54	18.40	1.00	~300
NGC 1806	29.3	196[2]	0.008	0.11	18.54	1.70	~500
NGC 1846	37.2	161.2[3]	0.008	0.11	18.44	1.75	~200

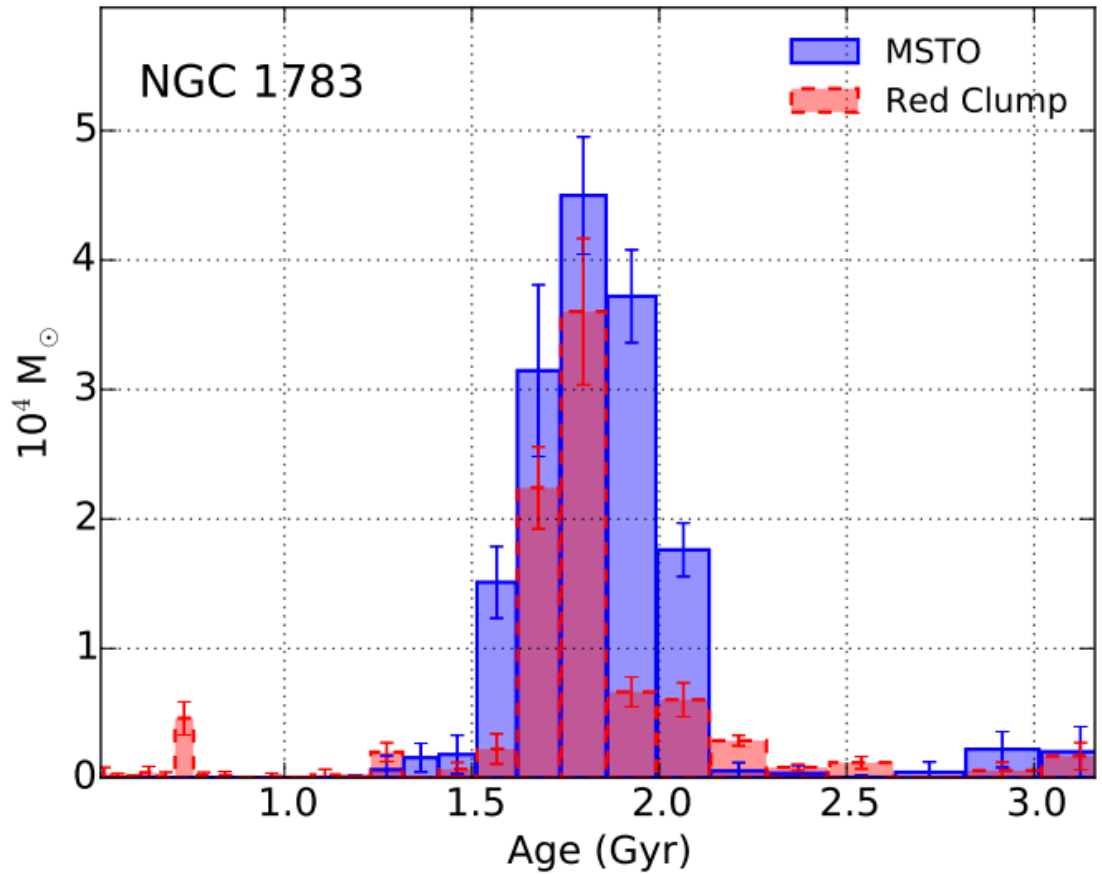


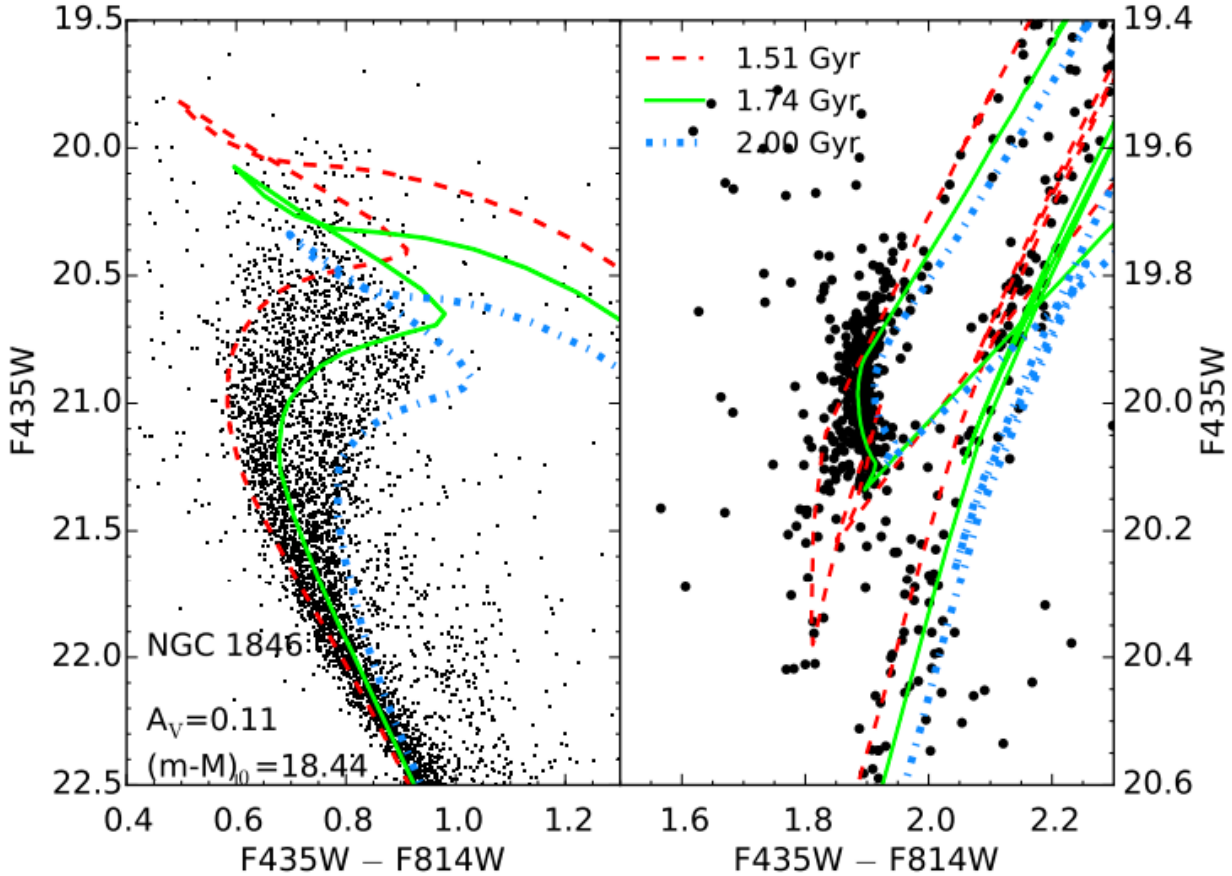
Before Extinction Correction

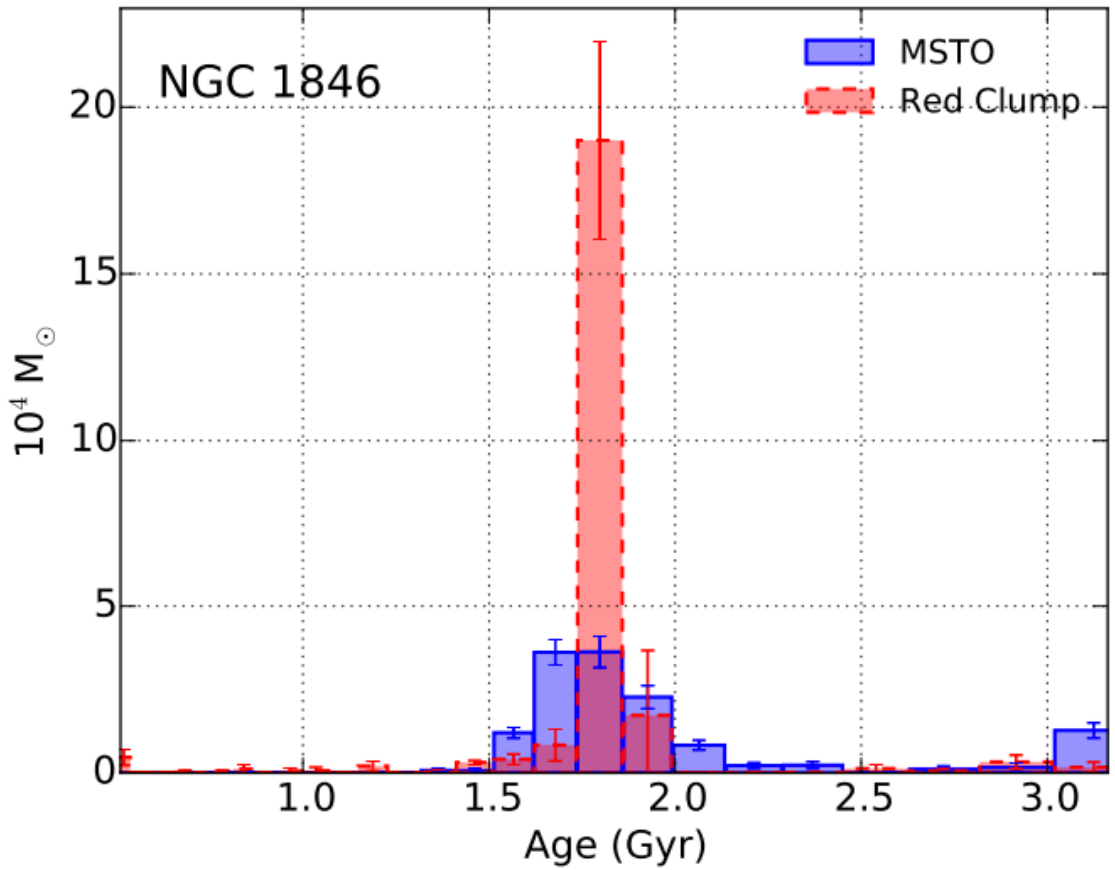


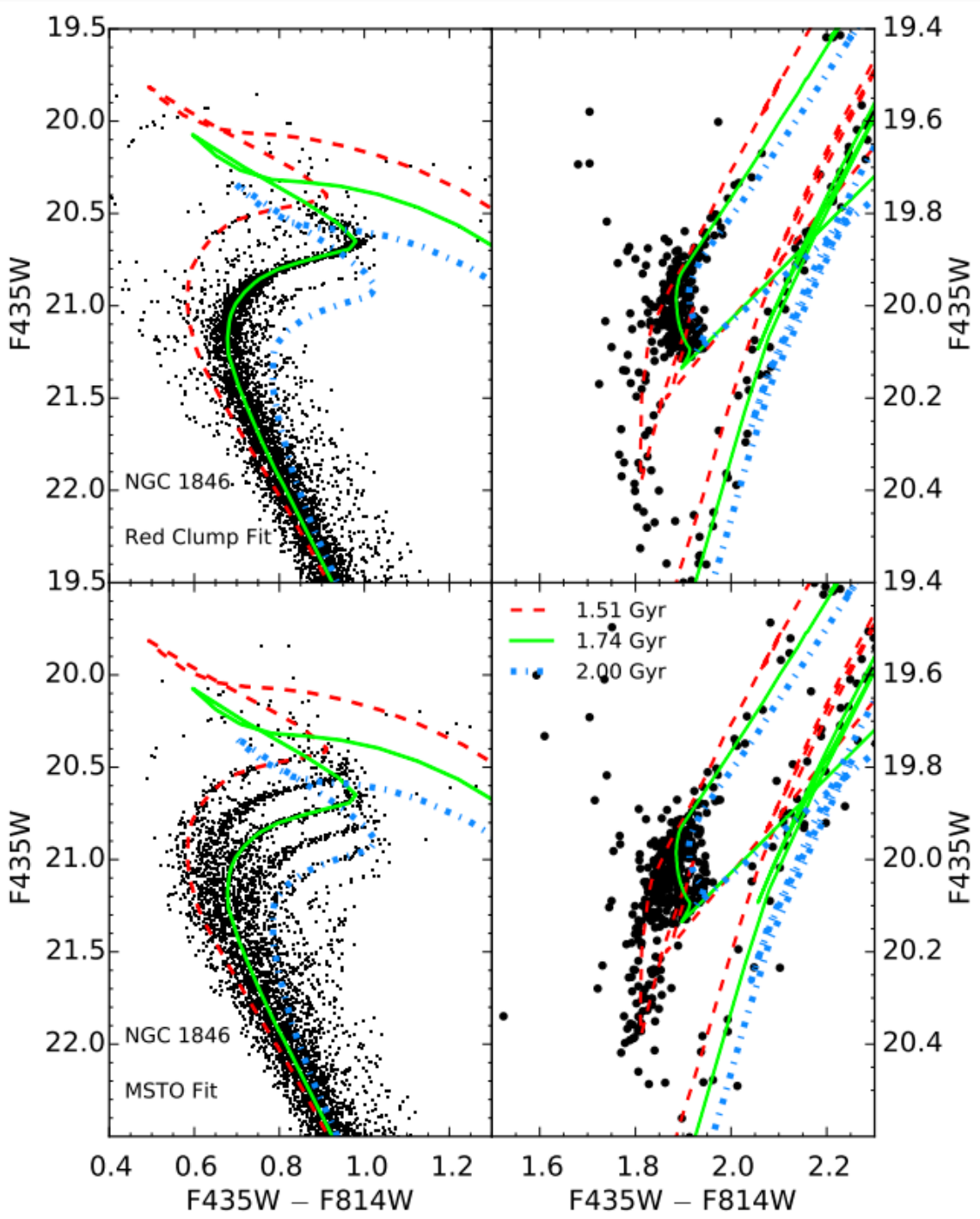
After Extinction Correction

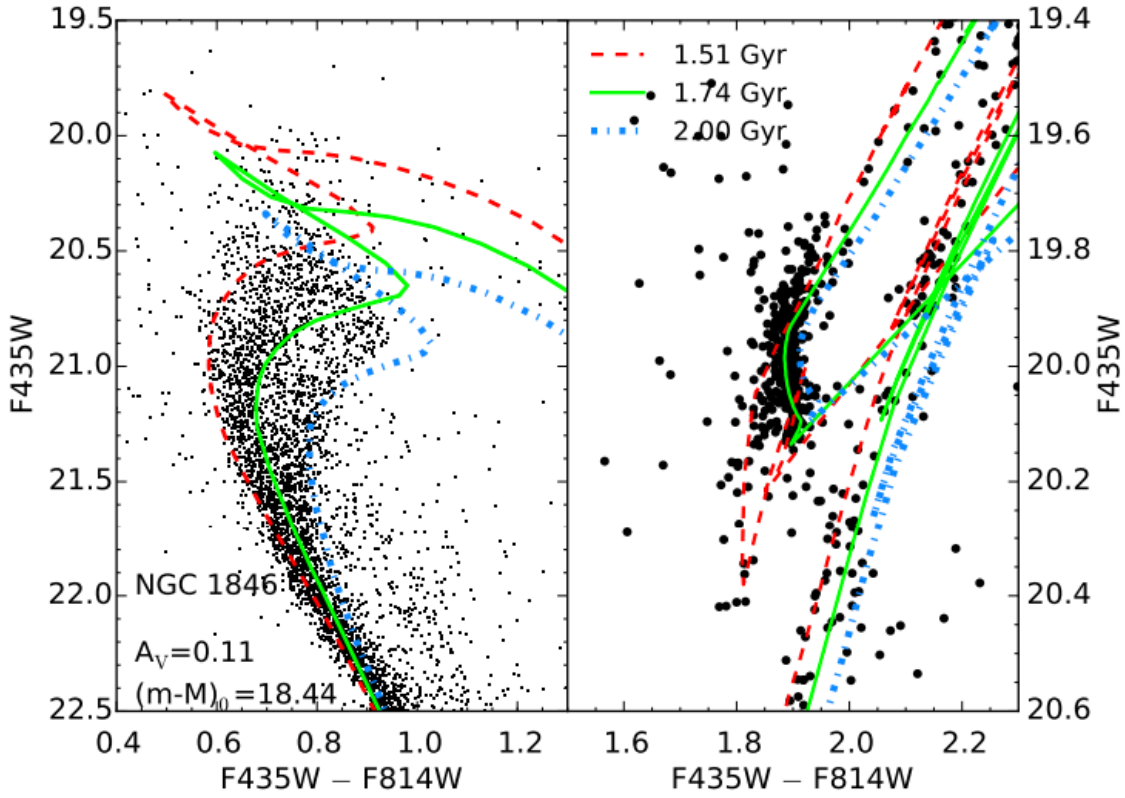

NGC 1783
A_V=0.08
$(m-M)_0$=18.41
1.51 Gyr
1.74 Gyr
2.00 Gyr
F435W
F435W − F814W


NGC 1783
MSTO
Red Clump
10^4 $M_\odot$
Age (Gyr)


1.51 Gyr
1.74 Gyr
2.00 Gyr
NGC 1846
A_V=0.11
$(m\text{-}M)_0$=18.44
F435W
F435W − F814W

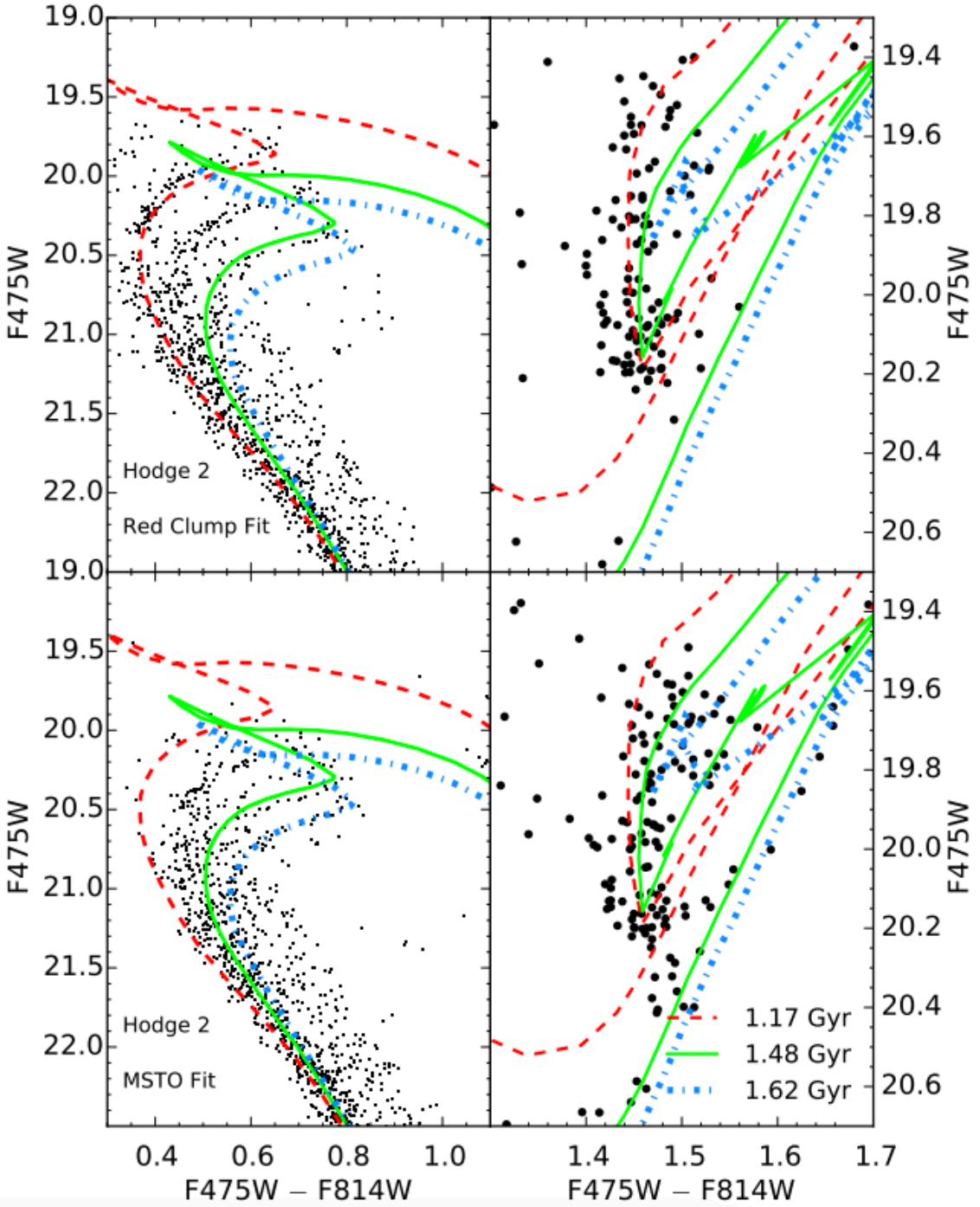

NGC 1846
MSTO
Red Clump
10^4 $M_\odot$
Age (Gyr)

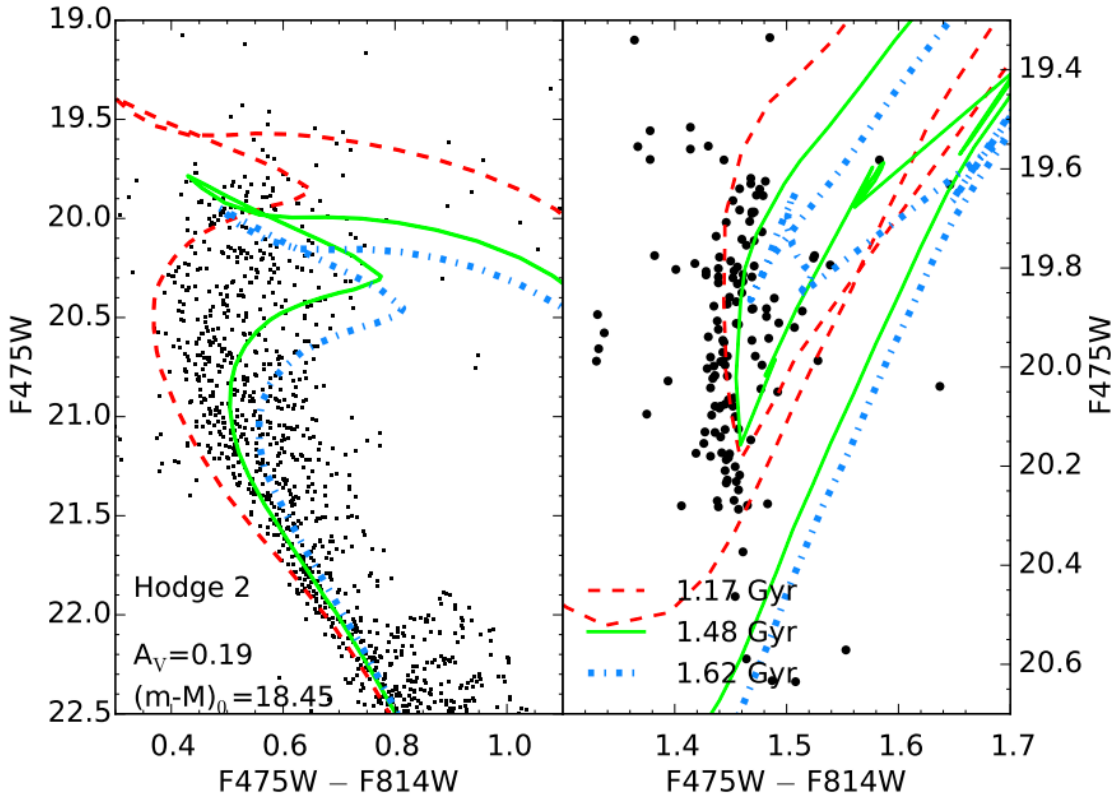




Synthetic Population

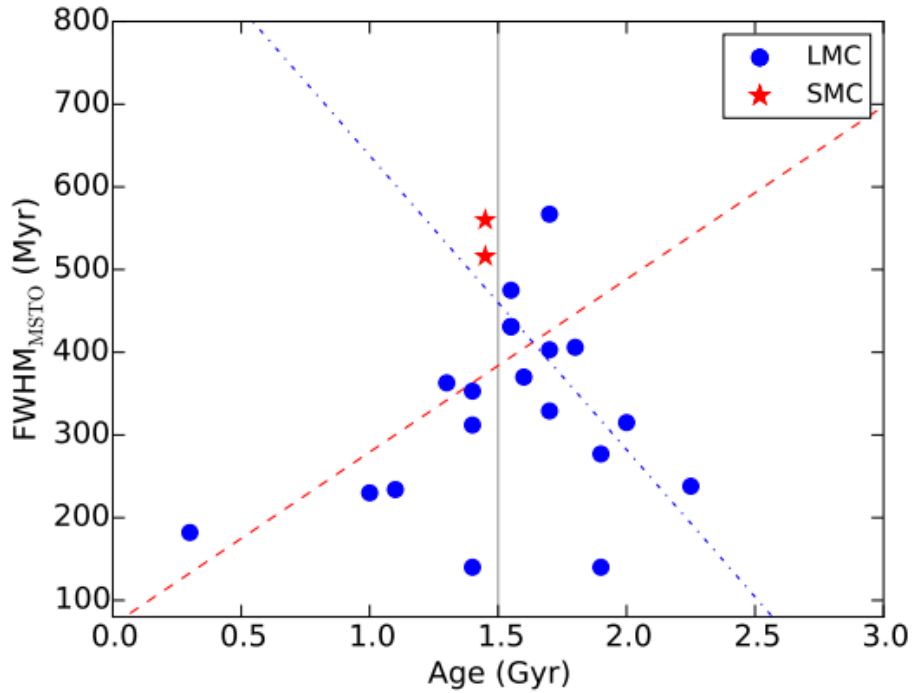
Observed Population

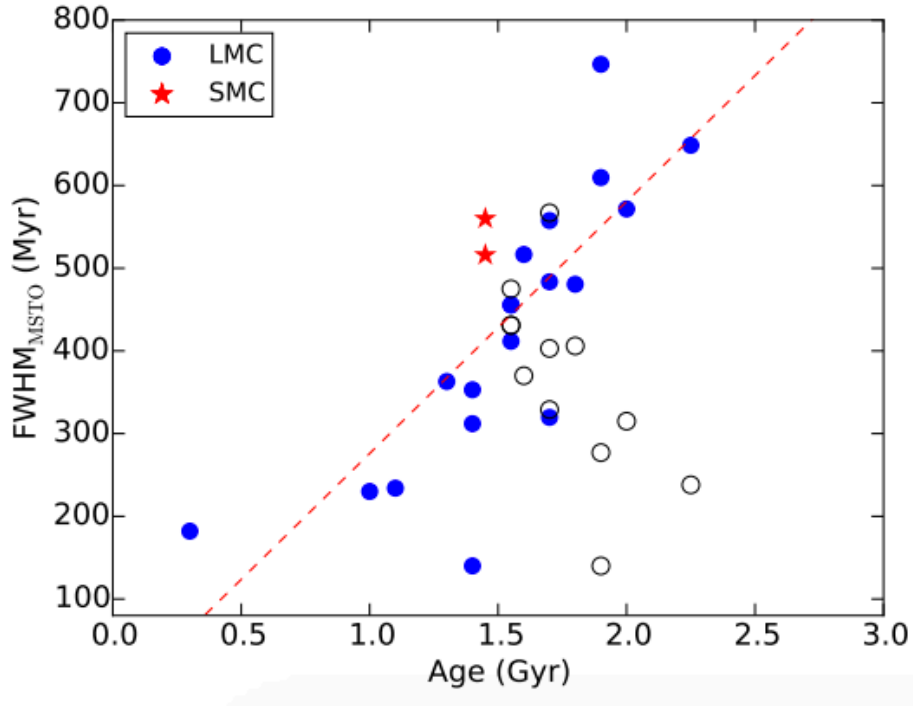


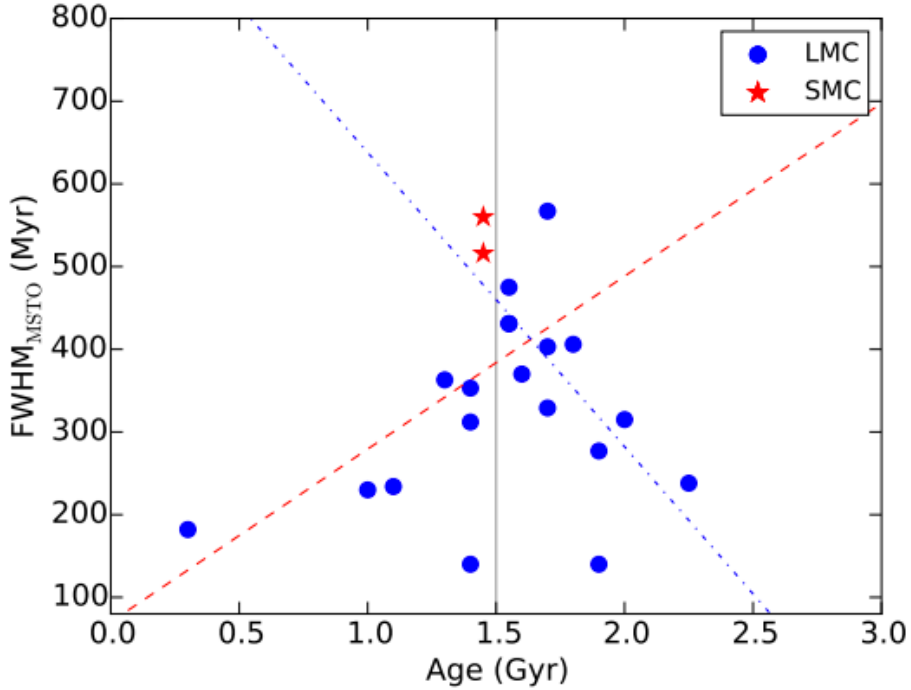


Synthetic Population

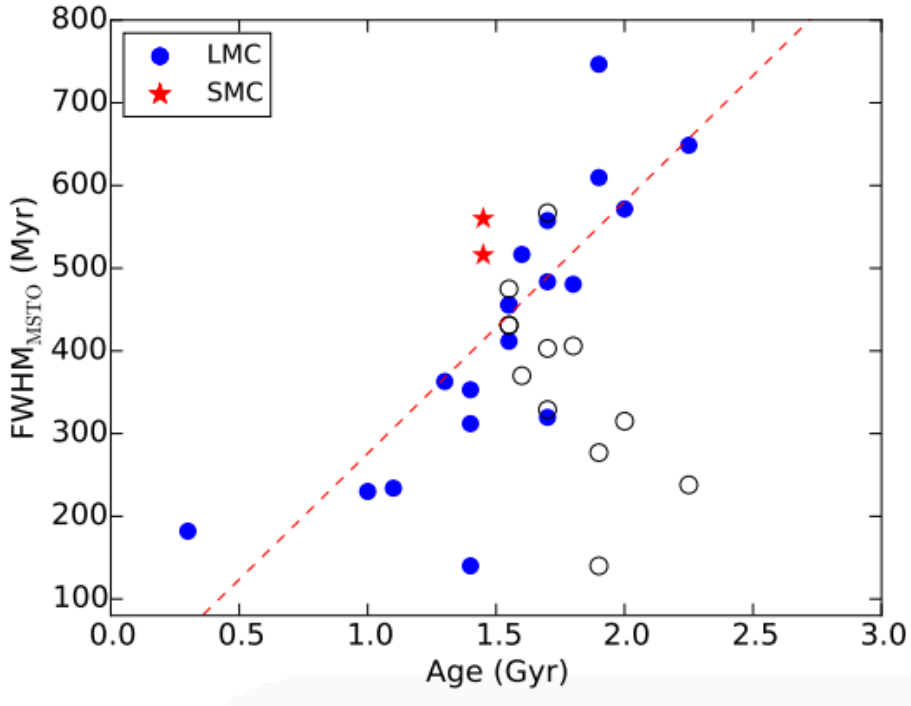
Observed Population


LMC
SMC
FWHM$_{MSTO}$ (Myr)
Age (Gyr)
800
700
600
500
400
300
200
100
0.0
0.5
1.0
1.5
2.0
2.5
3.0


LMC
SMC
FWHM$_{MSTO}$ (Myr)
Age (Gyr)
800
700
600
500
400
300
200
100
0.0
0.5
1.0
1.5
2.0
2.5
3.0


LMC
SMC
FWHM$_{MSTO}$ (Myr)
Age (Gyr)
800
700
600
500
400
300
200
100
0.0
0.5
1.0
1.5
2.0
2.5
3.0


REXTHOR, THE DOG-BEARER


LMC
SMC
FWHM$_{MSTO}$ (Myr)
Age (Gyr)
800
700
600
500
400
300
200
100
0.0
0.5
1.0
1.5
2.0
2.5
3.0