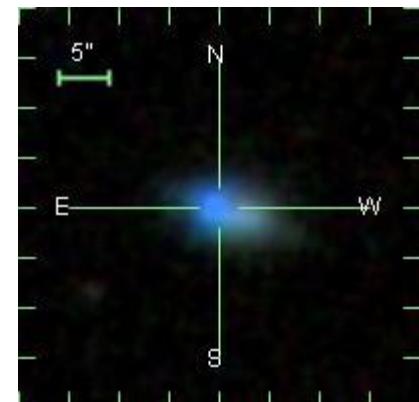
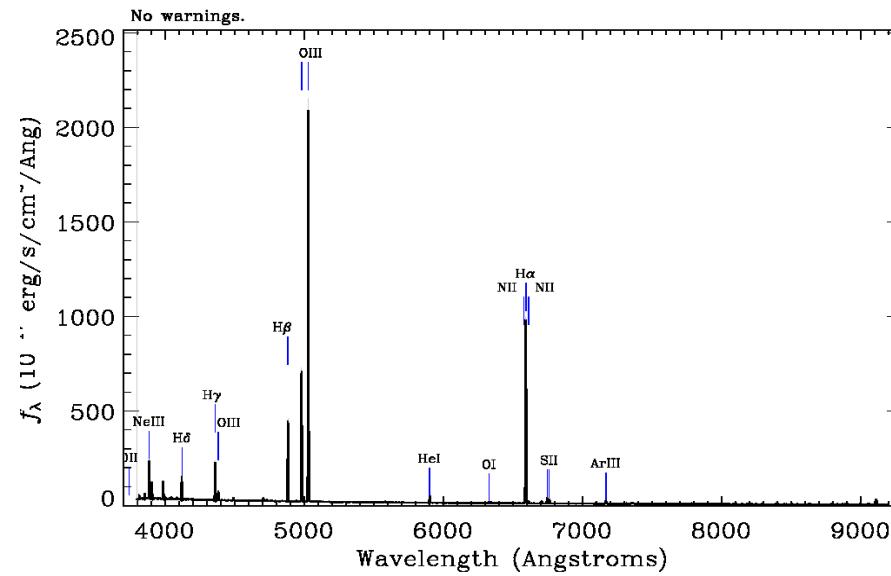


Blue Compact Dwarf Galaxies

Observations & Modeling for Gaia



The Greek team and associates

University of Athens

Mary Kontzas,
Evdokia Livanou, Antonios Karampelas,
Panagiotis Gavras, Petros Drazinos

National Observatory Of Athens

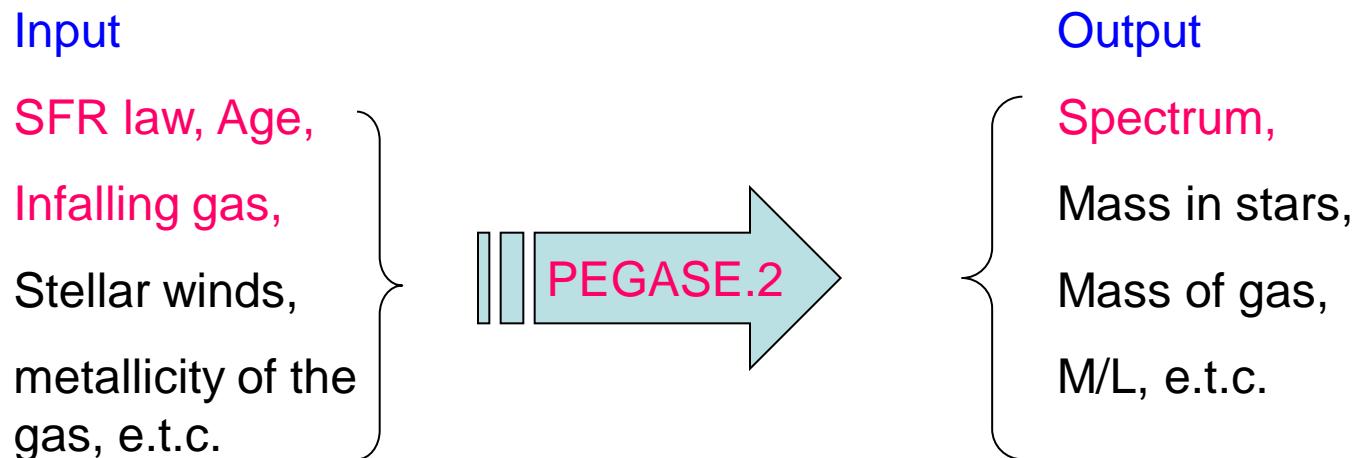
Ioannis Bellas-Velidis,
Evangelos Kontzas
Anastasios Dapergolas

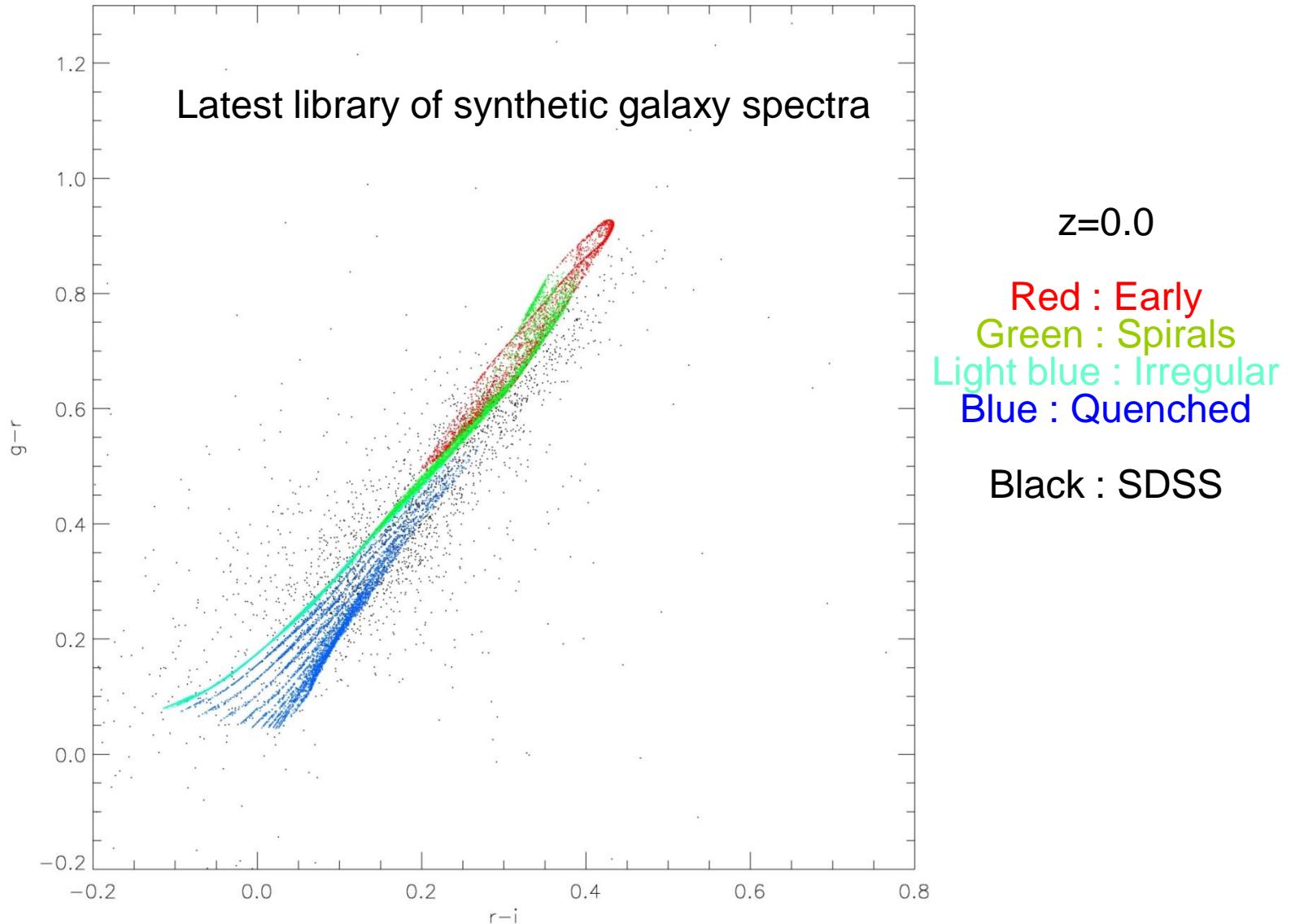
Europe

Brigitte Rocca-Volmerange, IAP, France
Antonella Vallenari, Univ. Padova, Italy
Paraskevi Tsalmantza, MPIA, Heidelberg

The synthetic spectra are created with the
galaxy evolution model
PEGASE.2

(Fioc & Rocca-Volmerange, 1997, 1999;
Le Borgne & Rocca-Volmerange, 2002).





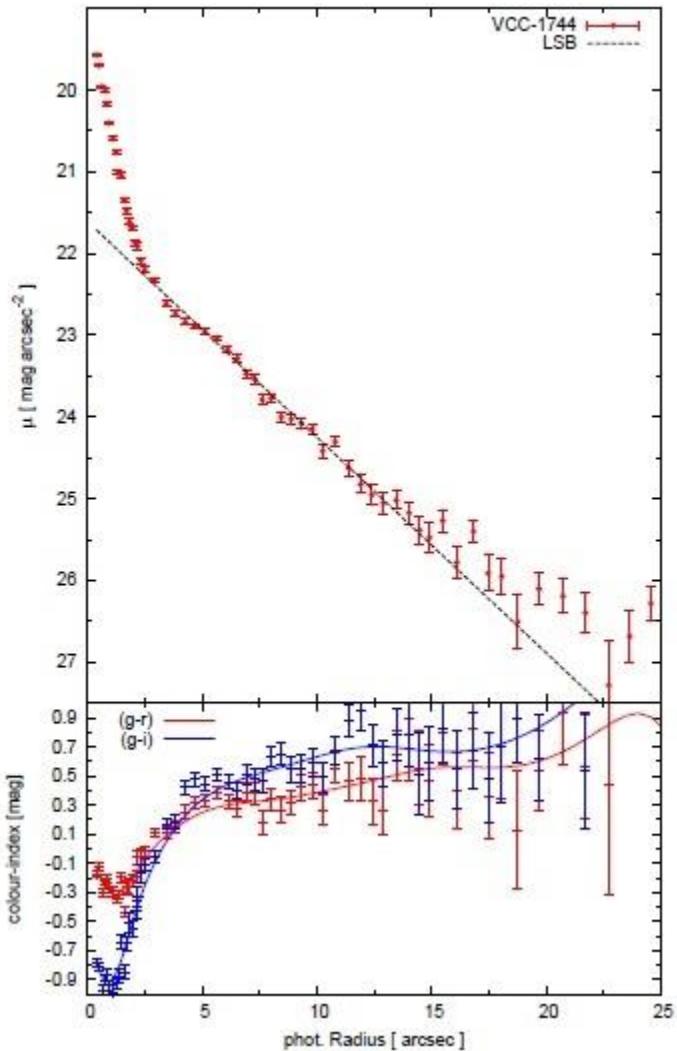
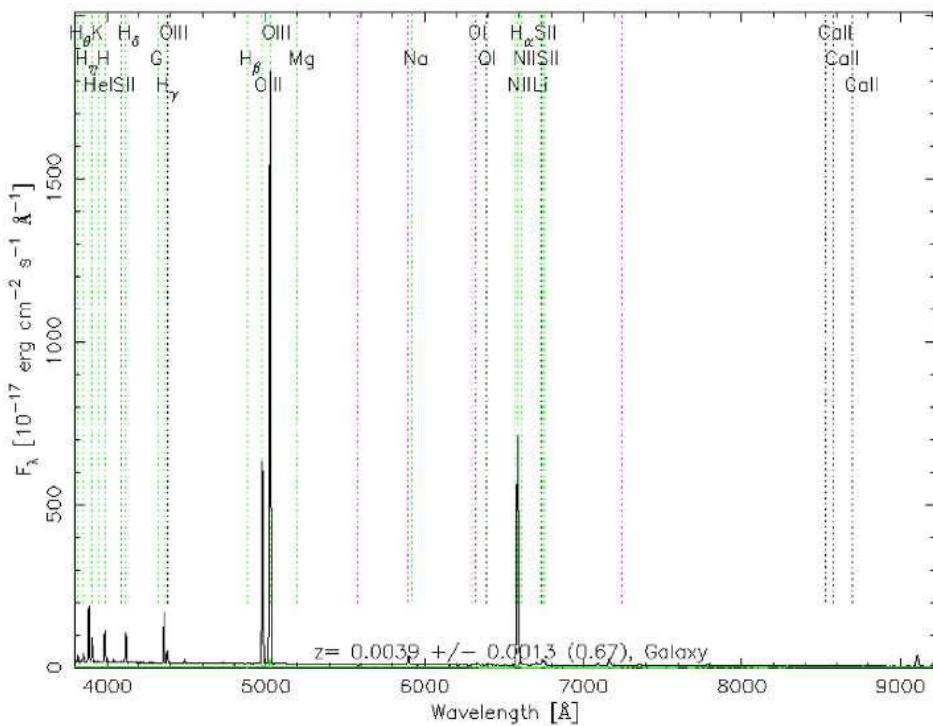
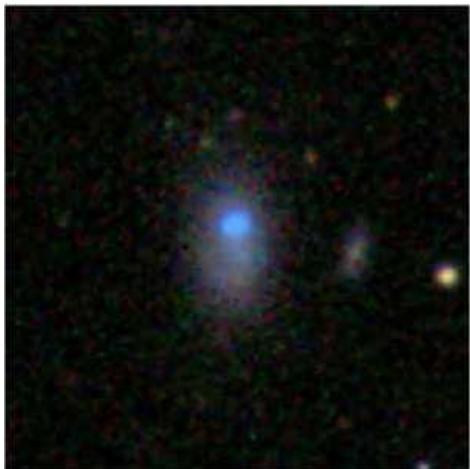
Livanou, E., Kontizas, M. et al., 2013

Questions about the dwarfs in the library

- Are there observations that coincide with the models?
- Will they be detected by Gaia?
- What are the star formation histories of these models?
-

Detected by Gaia?

VCC-1744



Mayer et al., 2013

Galaxies in our sample

Meyer et al., 2014 (2014A&A...562A..49M)

55 BCDs and irregular galaxies in the Virgo cluster from SDSS images

Janowiecki & Salzer, 2014 (2014ApJ...793..109J)

26 Blue Compact Dwarfs

Koleva et al., 2014 (2014MNRAS.441..452K)

8 Blue Compact Dwarfs

Hirashita, 2013 (2013MNRAS.429.3390H)

31 Blue Compact Dwarfs

Zhao et al., 2013 (2013ApJ...764...44Z)

53 E- and I-type BCDs

Papaderos et al., 2006 (2006A&A...457...45P)

14 emission-line galaxies from the Two-Degree Field Galaxy Redshift Survey (2dFGRS)

Thuan & Martin, 1981 (1981ApJ...247..823T)

Blue compact dwarf galaxies. I - Neutral hydrogen observations of

115 galaxies

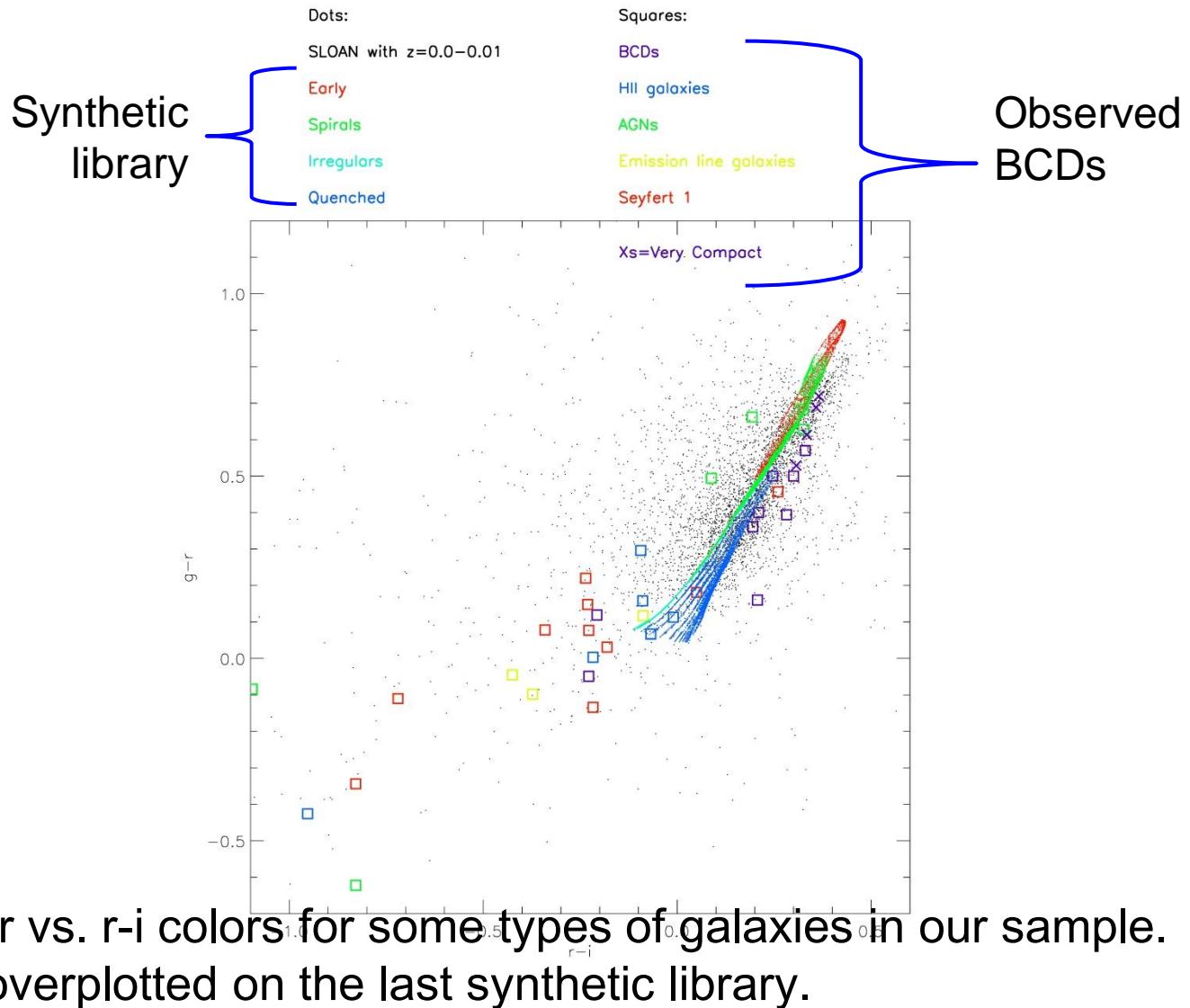
and galaxies in studies of individual BCDs

After cross matching for unique Names and Coordinates we have a catalogue of **232 objects**

Galaxies in our sample
with available g,r,i magnitudes

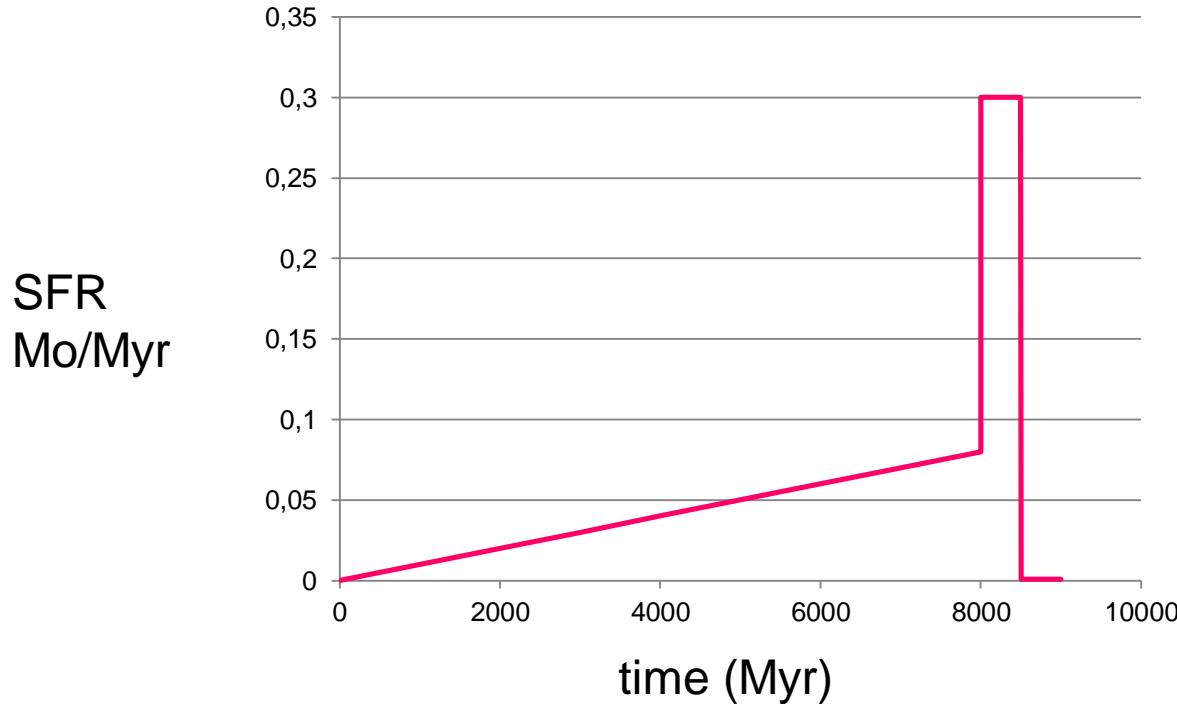
In different sub classification in the literature

- 10 BCDs
- 6 HII galaxies
- 6 AGNs
- 3 Emission line galaxies
- 11 Seyfert 1
- 4 Very Compact



Modeling with PEGASE.2

Episodic star formation scenario

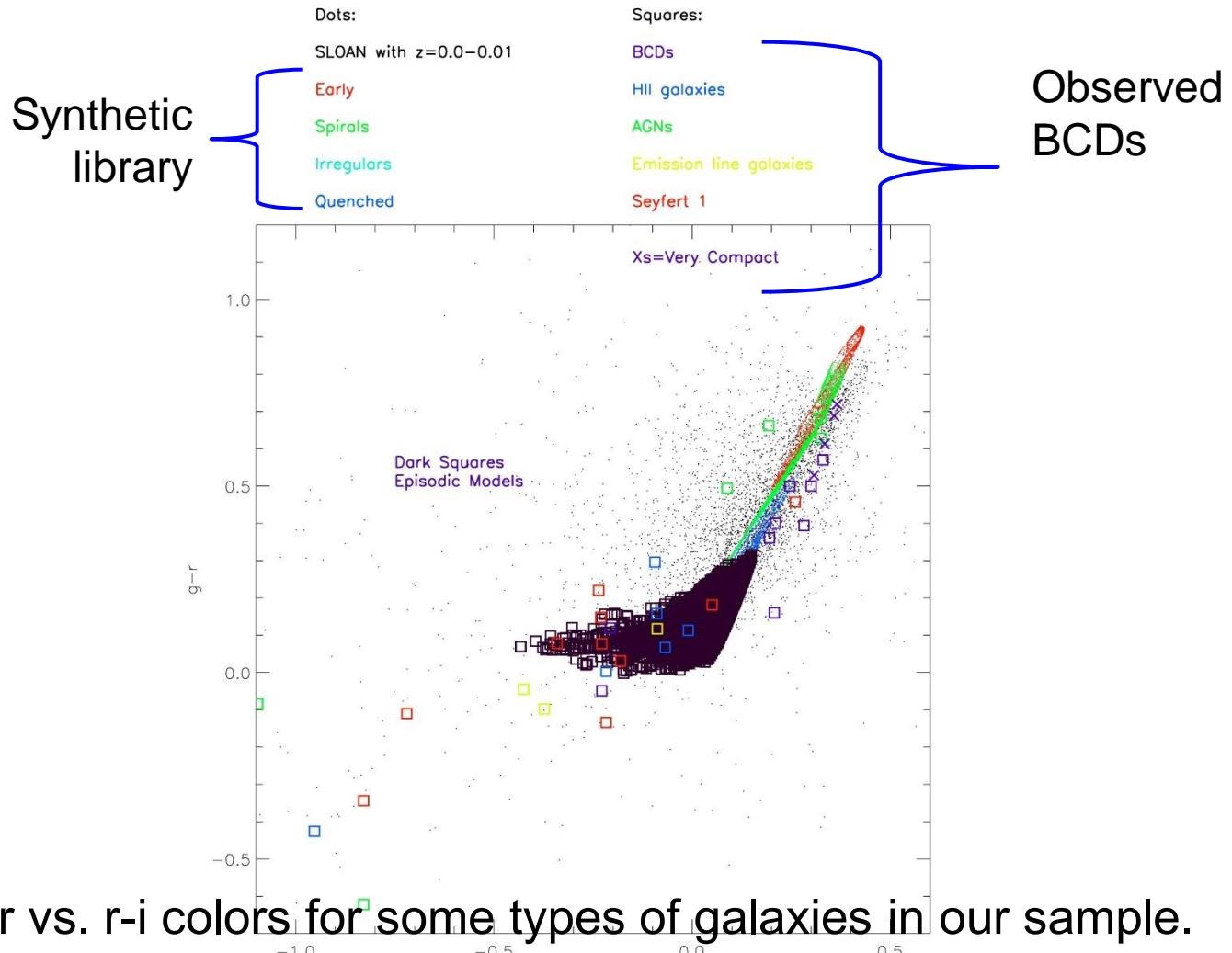


$M_{\text{gas}}^{p1/p2}$

$p1=1.5$

$p2=15000$ ($\sim 1/v$ with $v=0.065/\text{Gyr}$)

Before the episode they are of type Im
(Le Borgne & Rocca-Volmerange 2002)



Plot of the $g-r$ vs. $r-i$ colors for some types of galaxies in our sample.
 They are overlaid on the last synthetic library
 & Episodic models

Conclusions:

- Observations that coincide with the models exist
- High probability to be detected by Gaia
- What are the star formation histories:
 - 1 resent (1-2 Myr) episode of star formation
 - No episode of star formation
 - 1 earlier (5-10 Myr) episode of star formation

Have to check in observations

- Concentration indexes
- Velocity dispersion



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Thank you!!!