



# EFIGI: contribution of HyperLeda



# HyperLeda EFIGI team

- Philippe Prugniel: coordinator, db software
- Georges Paturel: historical manager of HL, now retired, definition of the classification
- Dmitry Makarov: manual classification, revision of the morphological classification in HL
- Lidia Makarova: manual classification, nearby galaxies
- Natasa Gavrilovic & Areg Mickaelian: AGN



# HyperLeda : goal

- 3D atlas: Position, distance, morphology and luminosity
- Other attributes relevant to study the dynamics and stellar population (formation and evolution of galaxies): SED, kinematics, spectrophotometry, AGN characterization



# HyperLeda : goal

- 3D atlas: Position, distance, morphology and luminosity
- Other attributes relevant to study the dynamics and stellar population (formation and evolution of galaxies): SED, kinematics, spectrophotometry, AGN characterization
- Morphology is the important important physical parameter, after luminosity.
- We want a better classification than blue vs red sequence (this is not a morphological classif).



# HyperLeda : content

- 5 M galaxies assembled from many sources:
  - PGC (1989), result of the cross-id between the galaxy catalogues of the 50-70s
    - Inheritance of RC2, preparation of RC3
  - Cross-identifications of sources from 2000 references
  - Large surveys (2MASS, DENIS, SDSS, 2DF)



# HyperLeda : content

- 5 M galaxies assembled from many sources
- 15 Compilations of individual measurements
  - Designations
  - Positions
  - Size, Orientation
  - SED
  - cz
  - Morphology
  - AGN classification
  - Velocity dispersion, rotation (gas, stars), spectrophotometry



# HyperLeda : content

- 5 M galaxies assembled from many sources
- 15 Compilations of individual measurements
- 70 *homogenized* attributes
  - Combine the individual measurements (project to a uniform scale, apply systematic corrections, merge: average, select the best)

## Access

- See: <http://leda.univ-lyon1.fr>



# HyperLeda : morphology

- Use the morphological description of de Vaucouleurs
- Classification from good quality photographic images (about 2000 objects classified by experts like de Vaucouleurs, Corwin...).
- Classification from photographic surveys: UGC, MCG, ESO-UP, HyperLeda (about 100 k objects)
- Classification derived from photometry of large surveys: 2MASS (photometric classification projected to morphology) (1.3 M objects)





# HyperLeda : morphological attributes

- De Vaucouleurs revised type (scale from -5 to 10)
- Additional attributes:
  - Diffuse/compact
  - Bar
  - Ring
  - Interaction



# HyperLeda : morphological attributes

- De Vaucouleurs revised type (scale from -5 to 10)
- Additional attributes:
  - Diffuse/compact
  - Bar
  - Ring
  - Interaction
- No detailed description of the spiral structure, presence of dust lanes, shell, ...
- Homogenization hazardous



# HyperLeda : Ongoing actions

- Manual classification of the EFIGI sample
- Define an additional sample to be manual classified (nearby galaxies, low mass)



# HyperLeda : Future actions

- Manual classification of the EFIGI sample
- Define an additional sample to be manual classified (nearby galaxies, low mass)
- Modify the morphological attributes and adopt EFIGI classification
- Define the largest sample for which detailed morphology will be provided (2 --5 M)
- Determine attributes according to EFIGI precepts, ingest in the DB
- Multiparametric statistical analysis: *green* objects