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Deconstructing a galaxy: identifying components of M83 with photometric clustering

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ABSTRACT

Key words: keywords here

1 INTRODUCTION

Outline of intro:

(i) Galaxies have a lot of discrete sub-components: stars, clusters, nebulae, nucleus.
(ii) One way to isolate specific components is with narrow-band filters or CMD analysis.
(iii) But what if you already have all the filters, and you want to make a census? Can start with properties of known classes of objects & pick out from multi-dimensional dataset.
(iv) Another approach is to see what blind clustering gets you: how many groups and what are they? How does this depend on the (number of) wavelengths used?

Work to be cited:

- astro applications of k-means clustering
- astro applications of other ML techniques
- general bkg on galaxy constituents
- ??

2 DATA

Outline for data section

(i) Intro to WFC3 ERS dataset
(ii) intro to M83: global parameters (distance, size, environment)
(iii) existing studies with this dataset (cluster, massive stars, etc)
(iv) description of catalog (is there a ref for this??)
(v) anything about these data we don't like/didn't use?

3 ANALYSIS

Outline for analysis

(i) description of technique(s)
(ii) experiments with how to apply the technique
(iii) final parameters used

4 RESULTS

Well, what did you learn?

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