Test of BDT on DC1-Buzzard

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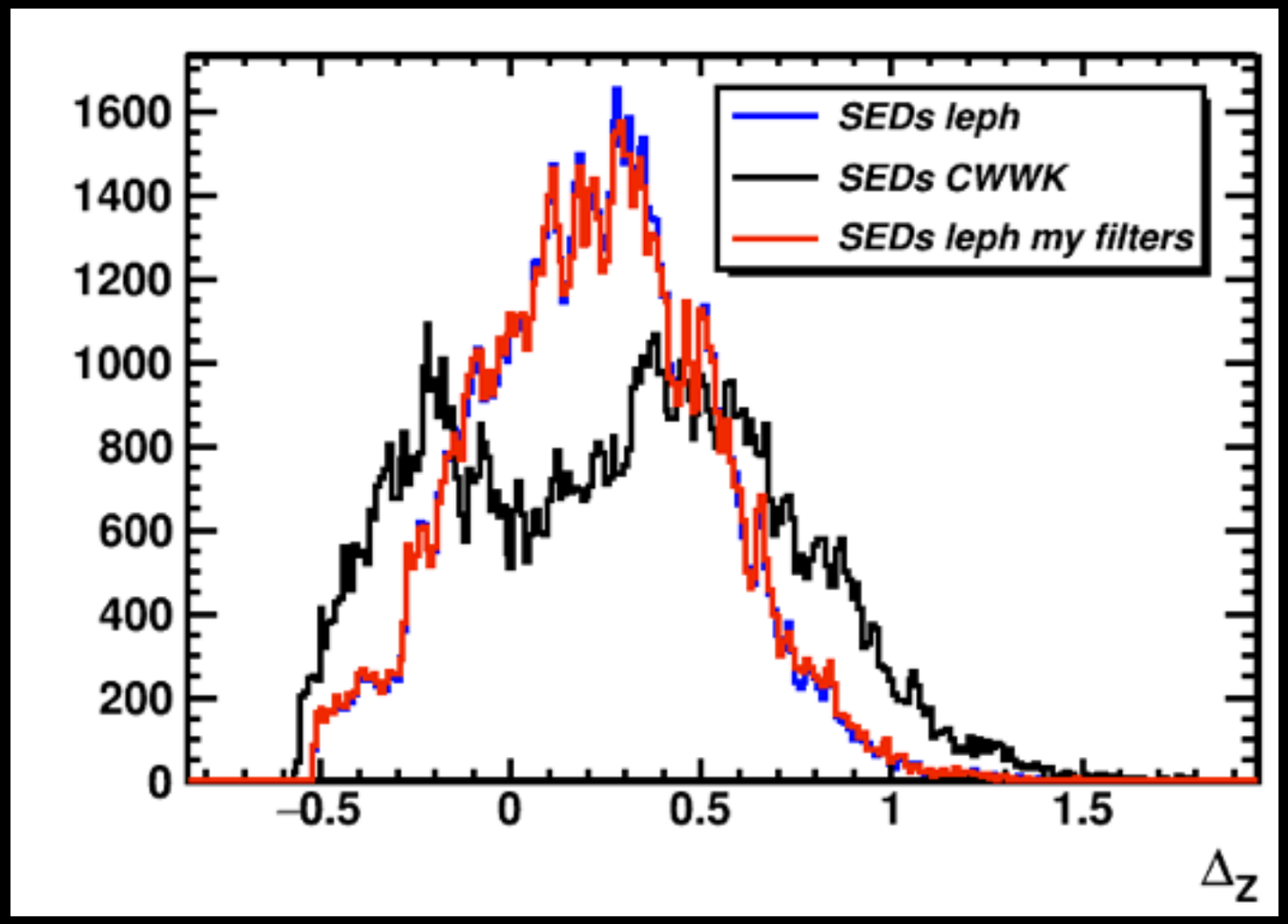
DC1 Photo-z

- Buzzard : abundance matching type simulation trained using a SDSS luminosity-density-SED relation, 1 million galaxies, i<27 and z<2
  111171 galaxies with true z
  44411 after golden cut
  (slightly wrong photometric errors)

- Galacticus : semi-analytic model to simulate the galaxy properties, empirical SEDs given by the Brown et al Atlas

First tests with Franzona



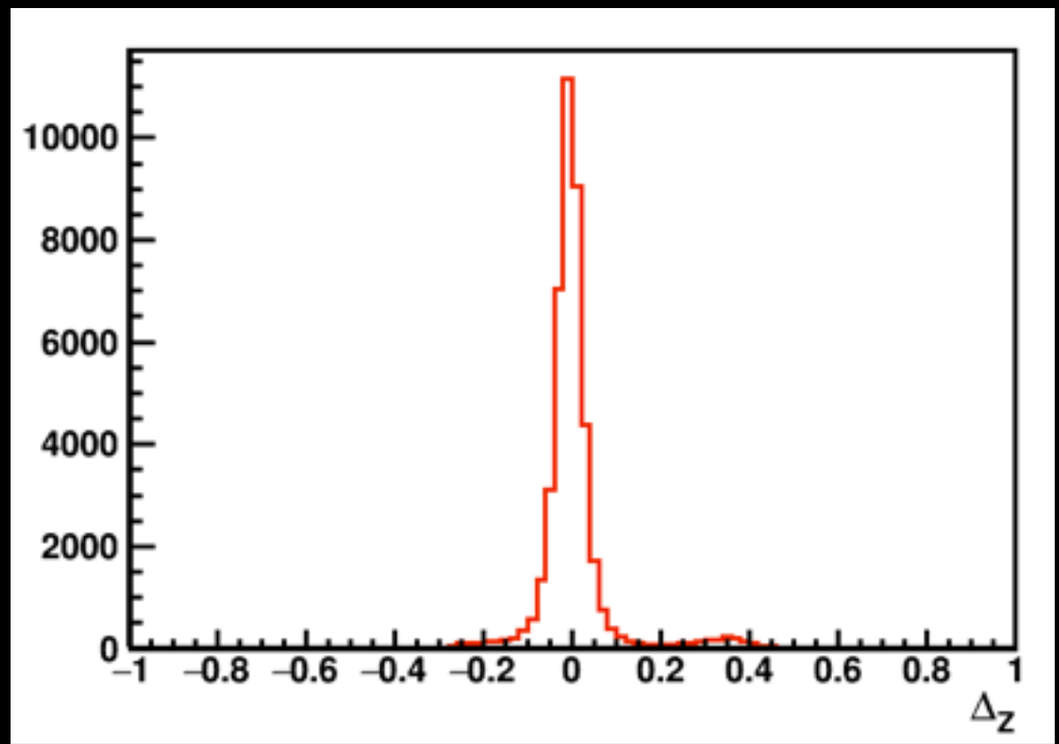
30 SEDs set used in lephare - cosmos reconstruction

Catastrophic reconstruction
Possible issues : no em. lines, no 0-point correction, others ?

Lephare

Gaussian Fit (mean +- sigma)

- Default :-1.53e-3 +- 4.68e-2
- no EM lines : -5.05e-3 +- 5.08e-2
- only gal lib :-5.05e-3 +- 5.082e-2
- no auto-adapt : 3.52e-3 +- 4.71e-2

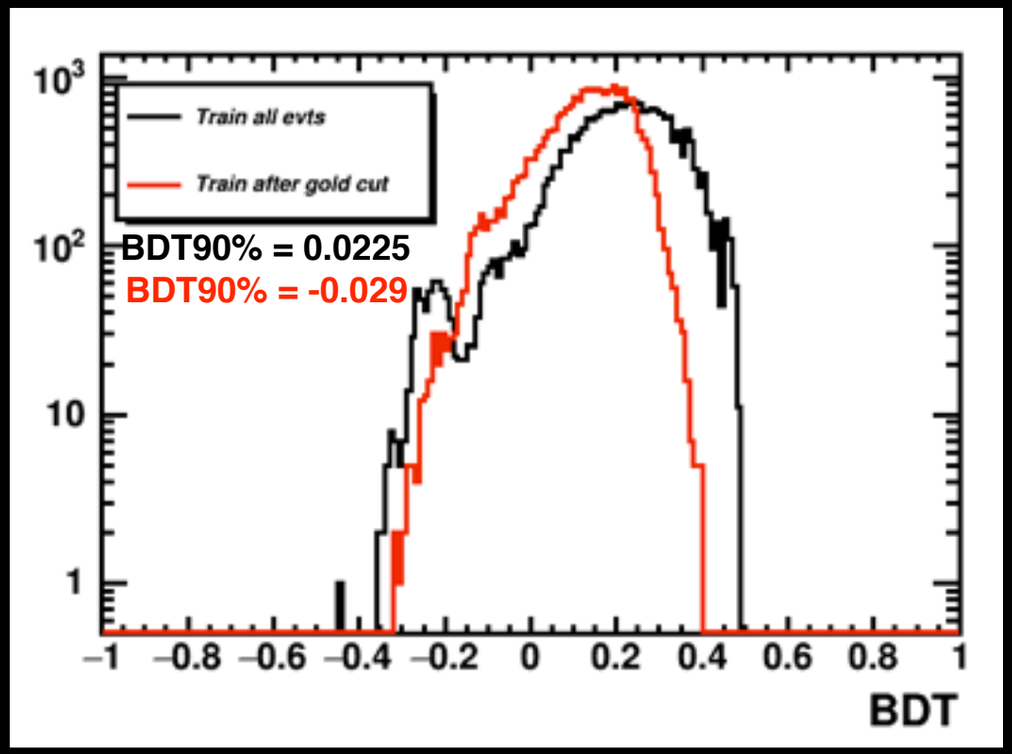


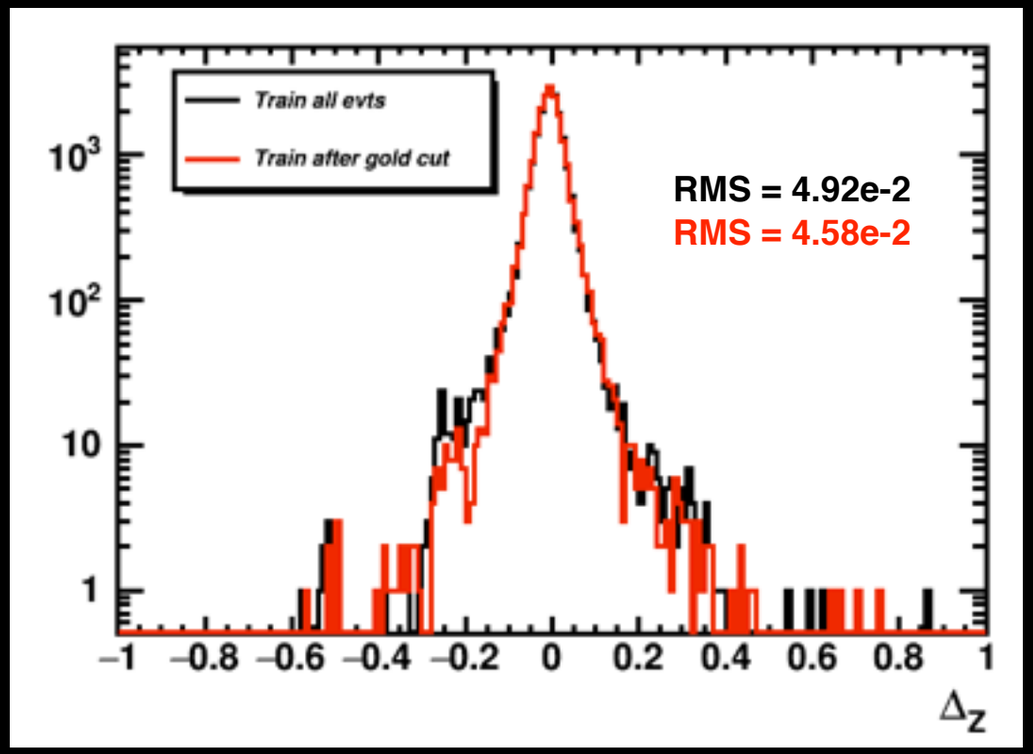
30 SEDs set used in lephare - cosmos reconstruction

Outliers rejection with BDT

Only P(z) characteristics, it seems we could add P(T) —> to be tested

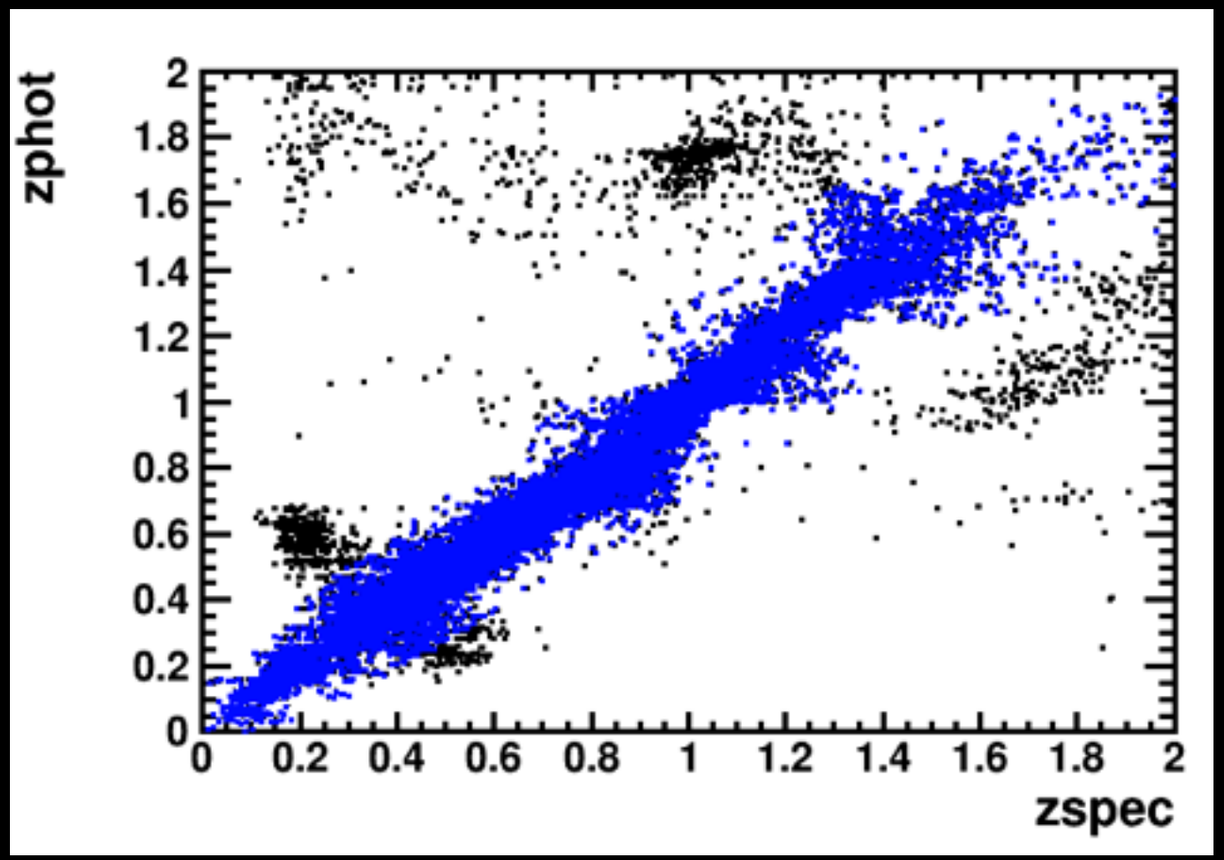
Sample split in training / testing set





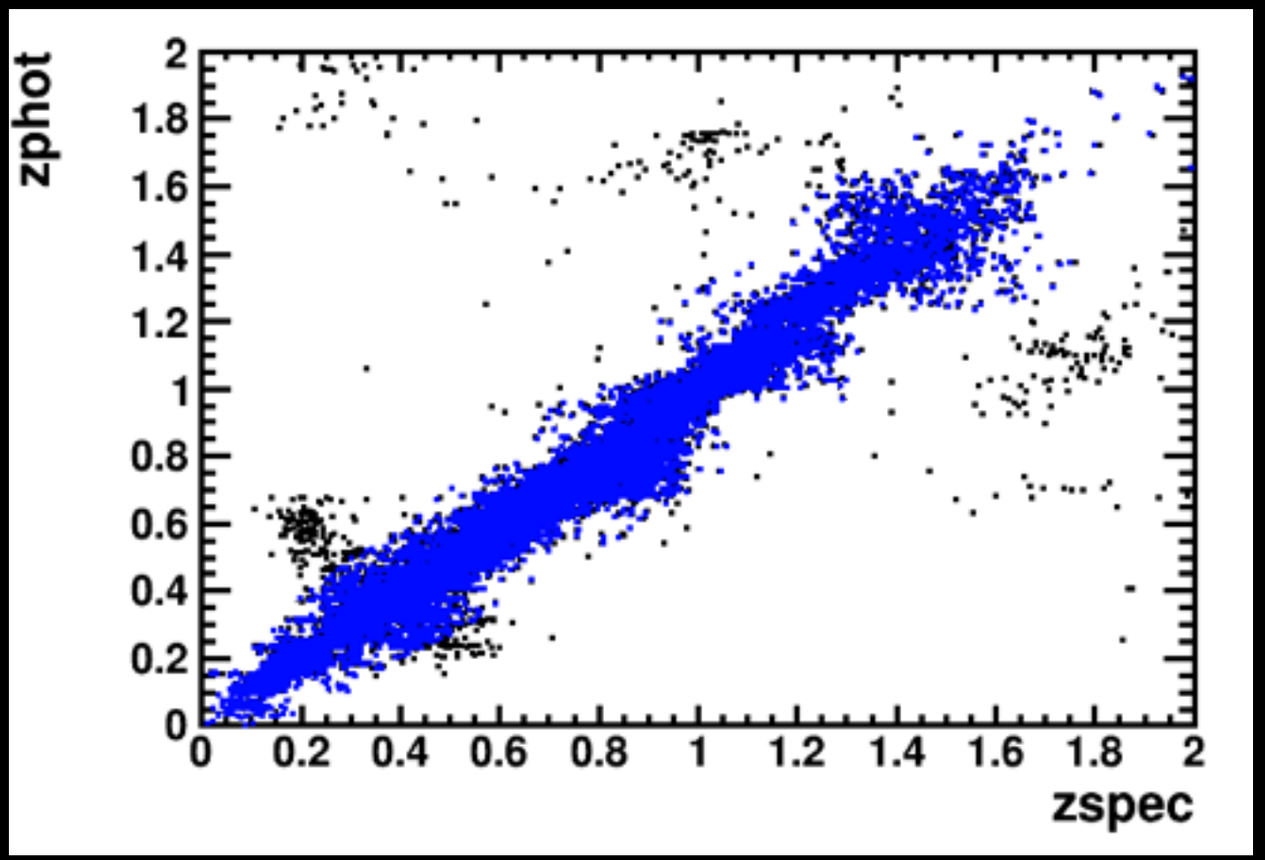
Golden cut

median = -0.0039; IQR = 0.044; outliers = 8.76%



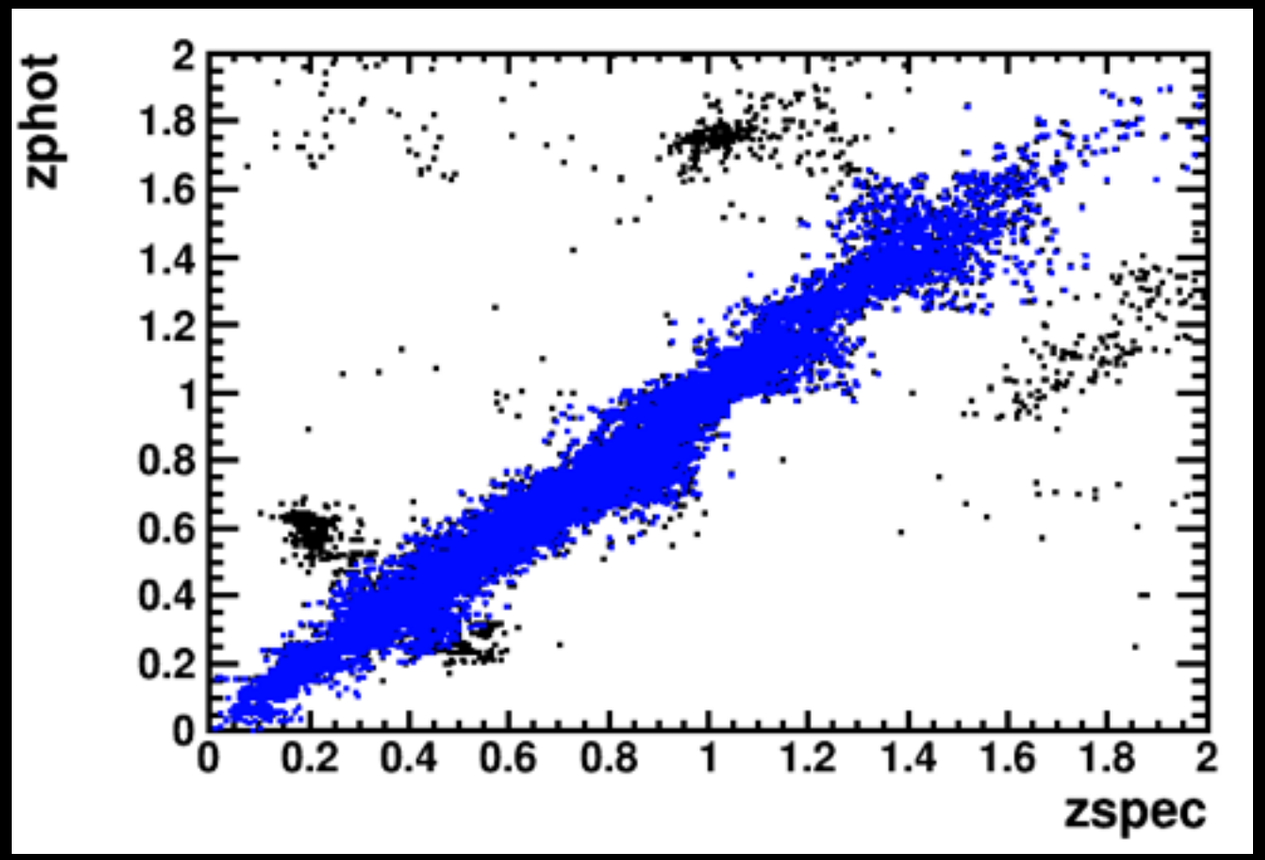
Golden cut & BDT 90%

median = -0.0055; IQR = 0.039; outliers = 3.01%

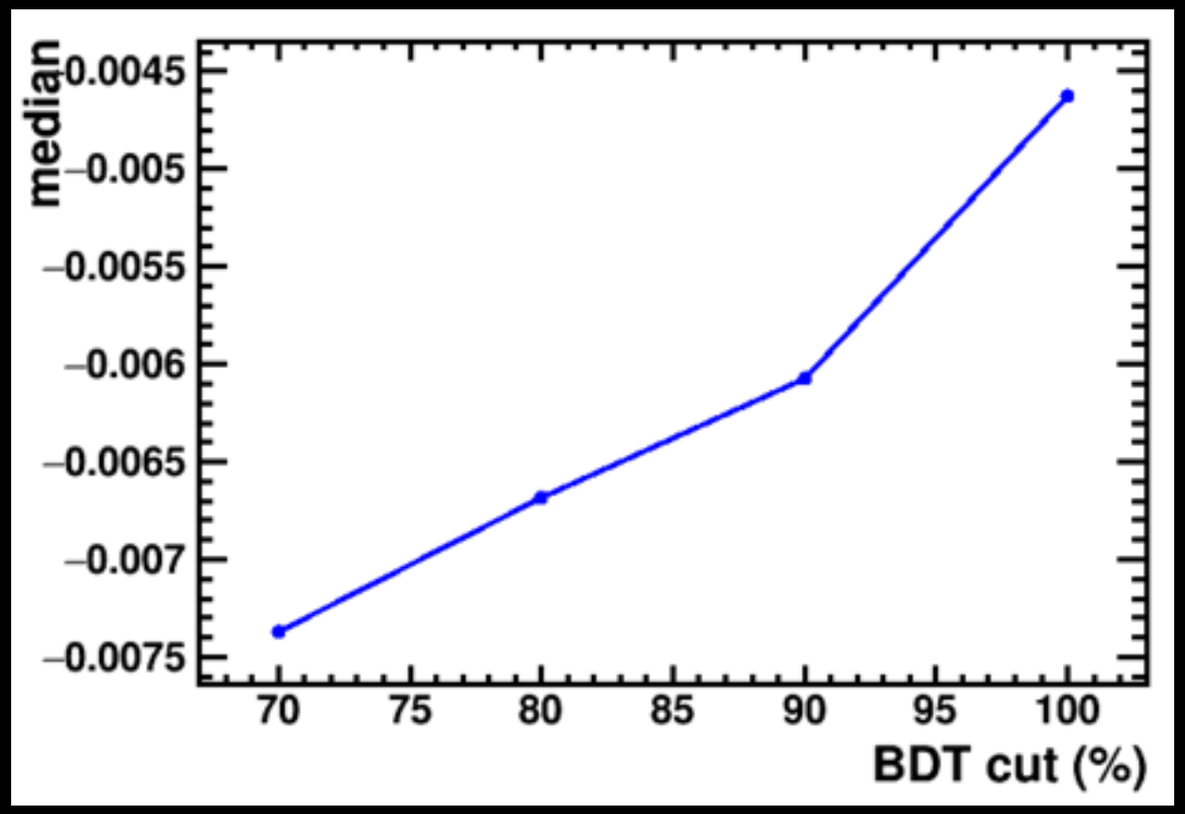


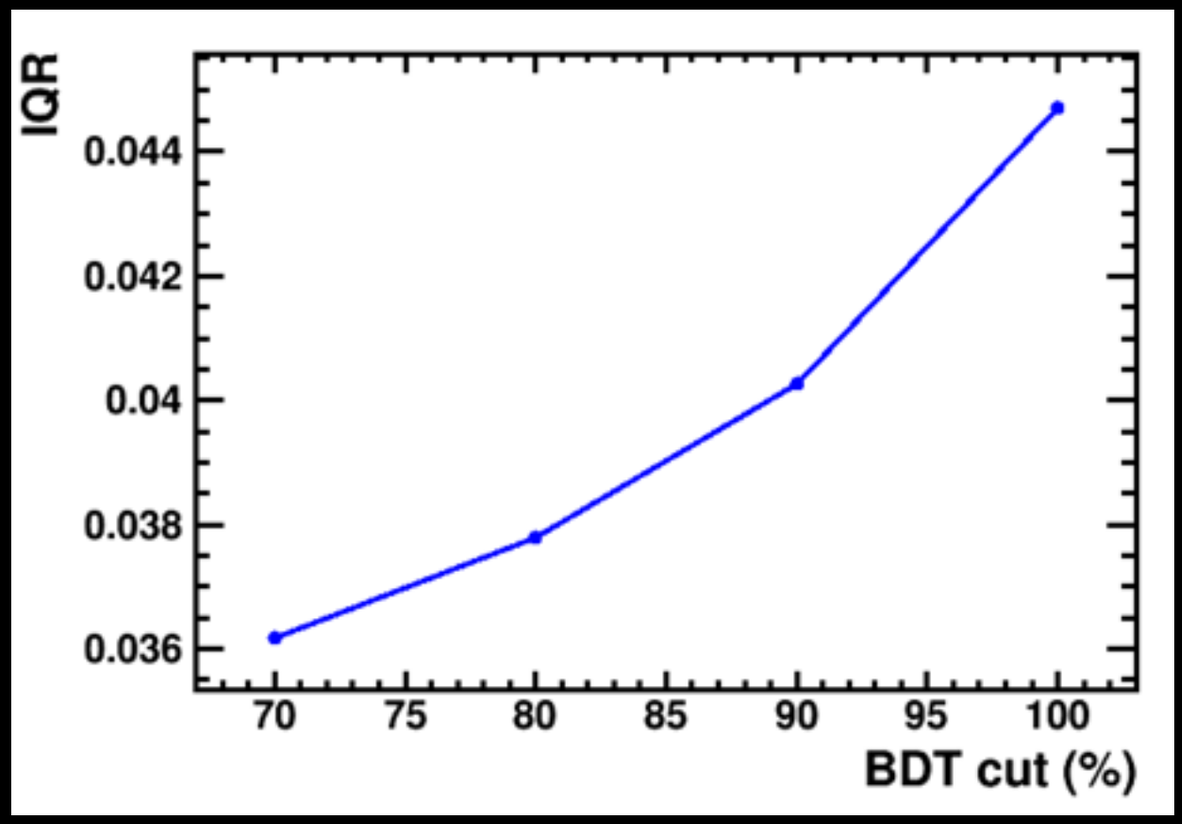
Golden cut & ODDS 90%

median = -0.0055; IQR = 0.039; outliers = 4.62%



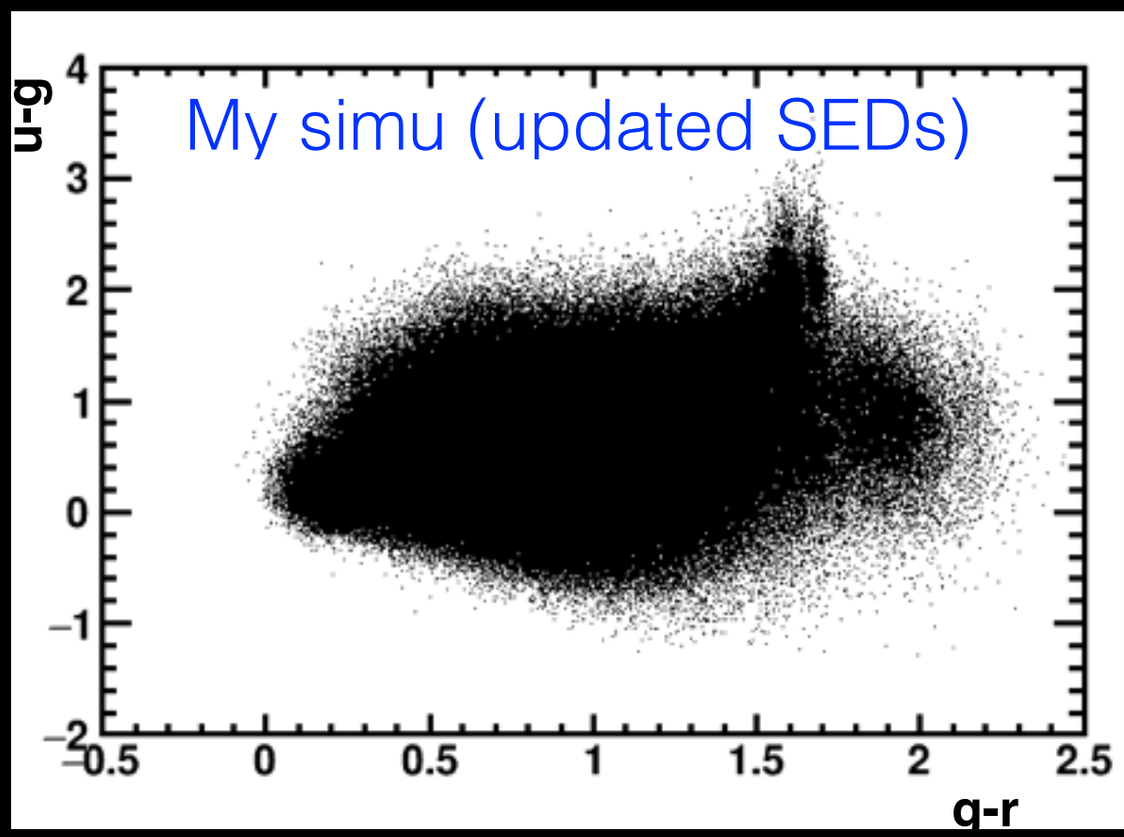
Slow dependance of the BDT on the performances

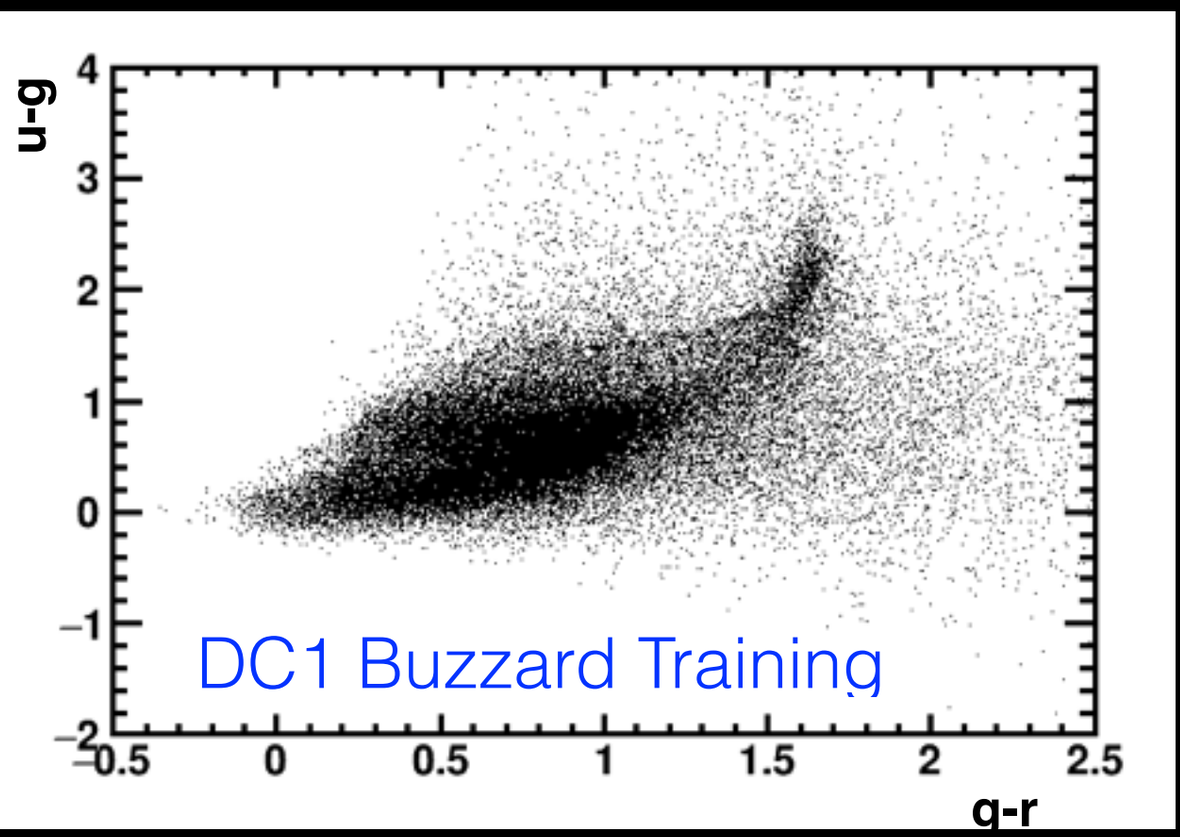




Can we improve the training with a larger sample ?

Simulation of a mock catalog using 50 SEDs of DC1
no EBV, no EM-lines, « wrong » LF





Bad matching in colors : need to be understood

To be done

- Do all of it again with the correct photometry catalog
- Add P(T) in BDT parameters
- Ask true z for buzzard testing sample to use a larger training set for the BDT and determine the optimal number of spectroscopic sample for the outlier rejection