# 光谱简单处理

1.SDSS SpecObjID = 2947691243863304192 2.COSMOS BCD

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H  $\alpha$   $\lambda$  6563

Ηβ λ**4861** 

[0 III] λ 500**7** 

	Η α λ 6563	Ηβ λ <b>4861</b>	[0 III] λ 500 <b>7</b>
网站	1496.5 $\pm$ 12.62	223.39± 4.27	41.92 ± 3.24
计算	1634.13	174.27	43.89

## ``Baldwin, Phillips & Terlevich'' (BPT) diagram





#### Blue Compact Dwarf (BCD) Galaxies



- Compact morphologies and active star formation
- Prevent the form of massive galaxies
- The gas consumption timescale is shorter

### Mass-metallicity (MZ) Relation

- Metallicity is the important parameter
- MZ relation is more fundamental
- The MZ relation at low mass is still debate

• The criteria for BCDs in the COSMOS field were: (1)*u*-*i*<1.3 (2)  $\mu_{F814W,peak}$ <22 mag arcsec<sup>-2</sup> (3)  $M_*$ <10<sup>9</sup>  $M_{\odot}$  (4)*z*<0.7

In total, ~1400 objects were selected .

• In the end, 180 galaxies were selected as intermediate redshift BCD sample.







	[0 II] λ 3727	Ηγ	Нβ	EW(Hβ)Å	[0 III] λ 495 <b>9</b>	[0 III] λ 5007
文献	$142.3 \pm 4.0$	39.4 ± 2.0	<b>65.8</b> ± 2.0	24.2	$110.9 \pm 2.3$	$298.9 \pm 2.7$
计算	134.16	32.04	49.49	24.53	93.53	275.95
	12+log(0/ H)	Dn (4000)				
文献	8.20± 0.04	0.8				
计管	0 17	0 00				

#### 12+log(O/H) Te-method





R23



# D4000

• 4000 Å break is defined as the ratio between the average flux density in ergs  $\rm s^{-1}cm^{-2}Hz^{-1}$  between 4050 and 4250 Å and that between 3750 and 3950 Å (Bruzual 1983).

$$\langle F \rangle = \frac{\int_{\lambda_1}^{\lambda_2} F_{\nu} d\lambda}{\int_{\lambda_1}^{\lambda_2} d\lambda} ,$$

$$D(4000) = \frac{\langle F^+ \rangle}{\langle F^- \rangle} = \frac{(\lambda_2^- - \lambda_1^-) \int_{\lambda_1^+}^{\lambda_2^+} F_\nu d\lambda}{(\lambda_2^+ - \lambda_1^+) \int_{\lambda_1^-}^{\lambda_2^-} F_\nu d\lambda}, \quad (11)$$
  
where  $(\lambda_1^-, \lambda_2^-, \lambda_1^+, \lambda_2^+) = (3750, 3950, 4050, 4250)$  Å for  
the 4000 Å discontinuity.



红移改正后的D4000

#### D4000



FIG. 3.—Behavior of the 4000 Å discontinuity with spectral type. Different symbols represent stars of different luminosity classes: main sequence (circles), giants (triangles), and supergiants (crosses).

	[0 II] λ 3727	Ηγ	Нβ	EW(Hβ)Å	[0 III] λ 495 <b>9</b>	[0 III] λ 5007
文献	155.8 ± 6.4	33.7 ± 3.8	$54.6 \pm 3.2$	17.5	66.7 $\pm$ 2.8	206.7 $\pm$ 3.8
计算	134.75	29.14	40.69	15.27	53.42	184.44
	12+log(0/ H)	Dn (4000)				
文献	8.38 ± 0.06	1.1				
计算 allu Ew	8.29	1.02				





#### Conclusions

- Intermediate-z BCDs have R23 ratios higher than local BCDs.
- The MZ relation of BCDs at the intermediate redshift is fairly consistent with that of the local BCDs.
- Few deviation in the mass–SFR relation was found between the intermediate-z and local BCDs.
- The intermediate-z BCDs seemed to be younger than the local BCDs.