Diagnostic Ratios

[IT’S IMPORTANT TO ASK HERE…WHAT ARE EACH OF THIS RATIOS ACTUALLY DIAGNOSING HERE? LOTS ARE LISTED, BUT WHAT DO THEY TELL YOU AND DO THEY ADDRESS WHAT WE’RE TRYING TO ACHIEVE WITH THIS PROJECT?]

Optical

Baldwin et al 1981

* [O III] 5007 / H-beta acts as an indication of ionization parameter and temperature
  + NII / H-Alpha specifically is a very strong indicator of metallicity
* [O I] 6300 / H-alpha indicates hardness of ionization field
* [S II] 6717,30 / H-alpha
* [O III] 3727/ [O III] 5007 acts as an indicator of excitation mechanism

Shirazi & Brinchmann 2012

* [He II] 4686/ H-beta acts as an indicator of metallicity

Kewley et al. 2006

* [O III] / [O II] indicates ionization parameter

Tresse et al. 1996

* [O III] 5007 / H-beta vs [O II] 3727 / H-beta

Groves et al. 2004

* [O III] 5007 / H-beta vs [O II] 3727 / [O III] 5007
* [O III] 4363 / [O III] 5007 vs [He II] 4686 / H-beta
* [O III] 4363 / [O III] 5007 vs [O III] 5007 / H-beta

Unsure of source [IT’S NOT IN A PAPER, BUT IT DOES HAVE DIAGNOSTIC VALUE. DO YOU SEE WHY?]

* [S II] 6717 / [S II] 6730 vs [O II] 3727 / [N II] 6584

Infrared

Weaver 2010

* [O IV] 25.88 μm / [Ne III] 15.56 μm vs [Ne III] 15.56 μm/ [Ne II] 12.81 μm
* [Ne V] 24 μm vs [Ne V] 14 μm
* [Ne V] 14 μm vs [O IV] 25.88 μm
* [Ne V] 14 μm vs [Ne III] 15.56 μm
* [Ne V] 14 μm vs [Ne II] 12.81 μm

Sturm et al. 2002

* [Si IV] 10 μm / Brβ vs [Si II] 32 μm / Brβ
* Ne V 24 / Ne V 14 acts as a diagnostic of electron density
* Ne VI / O IV acts as a diagnostic of ionization parameter
* [O IV] 25.88 μm / Brβ vs [Fe II] 26 μm / Brβ

Osterbrock et al. 1992

* [S II] 9069, 9531/ Hα vs [S II] 6724 / Hα
* [O II] 7325 / Hα vs [S II] 6724 / Hα