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
* All of these are empirically derived indicators 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 II] 3727 / H-beta is an indicator of excitation mechanism

Groves et al. 2004

* [O III] 4363 / [O III] 5007 indicates temperature

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 acts as an indicator of density
* [O II] 3727 / [N II] 6584 acts as an indicator of abundances
* Ne III / H-alpha acts as an indicator of abundances
* O II / N II should act as an indicator of abundance

Nagao et al. 2006

* [N II] 6584 / [S II] 6720 acts as an indicator of Metallicity

Infrared

Weaver 2010

* [O IV] 25.88 μm / [Ne III] 15.56 μm indicates AGN Power
* Ne V 24.2 / Ne III indicates SED shape
* [Ne V] 14 μm vs [Ne III] 15.56 μm
* [Ne V] 14 μm /[Ne II] 12.81 μm acts as indicator of

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