TABLE A1

DUNN'S POST TESTS FOR ACTIVITY TYPES VS. BULGE MASS, TOTAL MASS, METALLICITY AND GRAVITATIONAL BINDING ENERGY

| | $M_{\rm Bulge}$ | | Group 1 | | Group 2 | | $M_B$ | | $M_K$ | | [O/H] | | U/N | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AGN | TO | AGN | TO | AGN | TO | AGN | TO | AGN | TO | AGN | TO | AGN | TO |
| AGN | | | | | | | | | | | | | | |
| TO | *** | | ns | | ns | | ns | | ns | | *** | | *** | |
| SFG | *** | *** | ns | ns | *** | ns | *** | ** | *** | *** | *** | *** | *** | ** |

We dedicate this article to the memory of Gabriel García Ruiz, night assistant and friend at the Observatorio Astronómico Nacional, San Pedro Mártir, Mexico, who died tragically while on duty at the end of 2010. The authors would also like to thank N. Bennert and S. Komossa for making their results of CLOUDY models available to us, and O. Shemmer for furnishing the data for the quasars and BLAGNs. T-P acknowledges PROMEP for support grant 103.5-10-4684 and I. P.-F. acknowledges a postdoctoral fellowship from Conacyt, Mexico No. 145727. This publication makes use of data products from the Two Micron All Sky Survey, which is a joint project of the University of Massachusetts and the Infrared Processing and Analysis Center/California Institute of Technology, funded by the National Aeronautics and Space Administration and the National Science Foundation. The SDSS is managed by the Astrophysical Research Consortium (ARC) for the Participating Institutions. The Participating Institutions are: the American Museum of Natural History, Astrophysical Institute Potsdam, University of Basel, University of Cambridge (Cambridge University), Case Western Reserve University, the University of Chicago, the Fermi National Accelerator Laboratory (Fermilab), the Institute for Advanced Study, the Japan Participation Group, the Johns Hopkins University, the Joint Institute for Nuclear Astrophysics, the Kavli Institute for Particle Astrophysics and Cosmology, the Korean Scientist Group, the Los Alamos National Laboratory, the Max-Planck-Institute for Astronomy (MPIA), the Max-Planck-Institute for Astrophysics (MPA), the New Mexico State University, the Ohio State University, the University of Pittsburgh, University of Portsmouth, Princeton University, the United States Naval Observatory, and the University of Washington.

## APPENDIX – RESULTS OF STATISTICAL TEST

The statistical tests used in this study are the non-parametric Kruskal-Wallis test (KW), together with the Dunn's post tests. The KW test compares the medians in three or more unmatched groups of data and the post tests do multiple one-to-one comparisons. The $P$ values reported in Tables A1 and A2 are codified in the following way: non significant difference, ns, significant, ** for $P < 0.01$, highly significant, *** for $P < 0.001$.

In Table A1, comparing the bulge mass in galaxies having different activity types, the post tests indicate that all three samples have different medians. In Group 1, no difference is found while in Group 2 only the AGNs differ from the SFGs.

In Table A2 we compare the bulge mass in galaxies having different morphologies; the post tests find highly significant differences between the most separated morphological classes. No differences are observed between the S0, S0a, Sa and Sab, the Sab and Sb, and the Sc and Sd. These tests suggest that the relation between bulge mass and activity type is a by-product of the morphology, consistent with the results for the diagnostic diagrams.

In Table A1 we verify that the total mass does not vary as strongly as the bulge mass in galaxies having different activity types. The same is true for the morphologies in Table A2. Therefore, the trend observed for the AGN activity is more qualitative than quantitative: it is not the mass of the galaxy that counts, but the fraction of mass that is in the form of a bulge.

In Table A1 we find significant differences in metallicities, the AGNs being less metal rich than the SFGs, and the TOs being intermediate. We also find a significant difference in metallicity between the early and late-type galaxies in Table A2, early-type galaxies being metal poor compared to late-type ones. These results are in good agreement with the difference in mean stellar population ages.