



Figure 1. L_H vs. L at many scales. On the horizontal axis are plotted the bolometric luminosities of representative white dwarfs, neutron stars and supermassive black holes; the inferred luminosity of the universe from energy replacement; and the excess heat emissions of some planets. Their respective Hubble luminosities are on the vertical axis. The solid line is the 1:1 correspondence. The range of luminosities covers 35 orders of magnitude. Abbreviations: WD, white dwarf; NS, neutron star; SMBH, supermassive black hole; U, the universe.