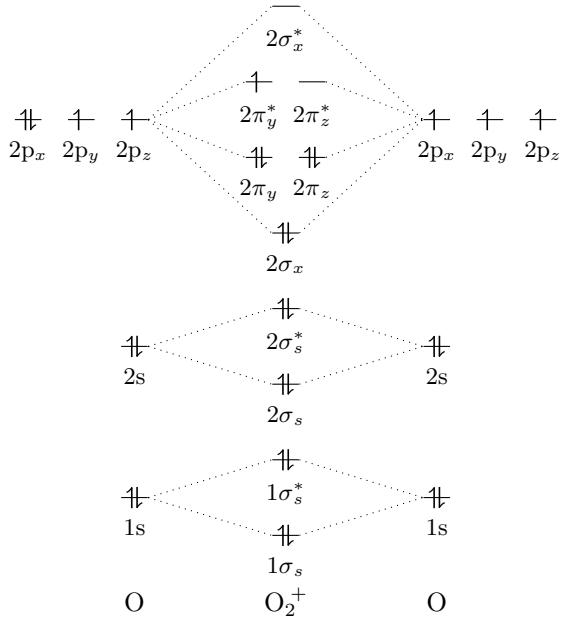
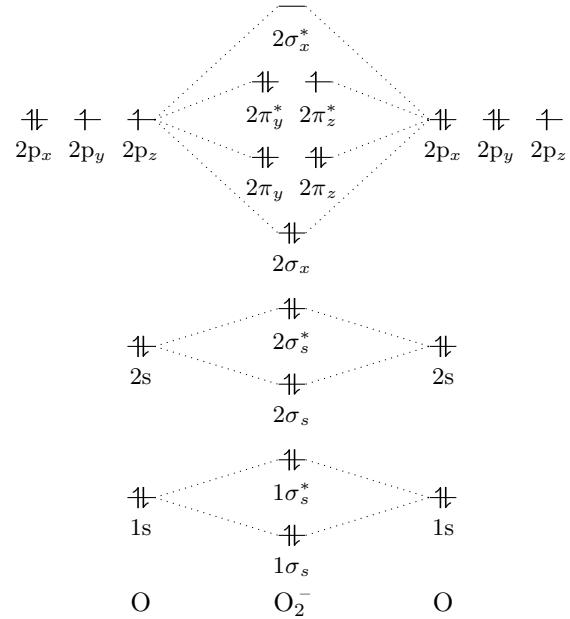


Each oxygen contributes eight total electrons. In filling the MO diagram, I choose to account for the loss of an electron in O_2^+ by removing one electron from the right side, and the addition of electrons in O_2^- and O_2^{2-} by adding to the right side. The predicted bond orders are 2.5 for O_2^+ , 2 for O_2 , 1.5 for O_2^- , and 1 for O_2^{2-} . Only O_2^{2-} has no unpaired electrons, making it diamagnetic; the other species are paramagnetic.

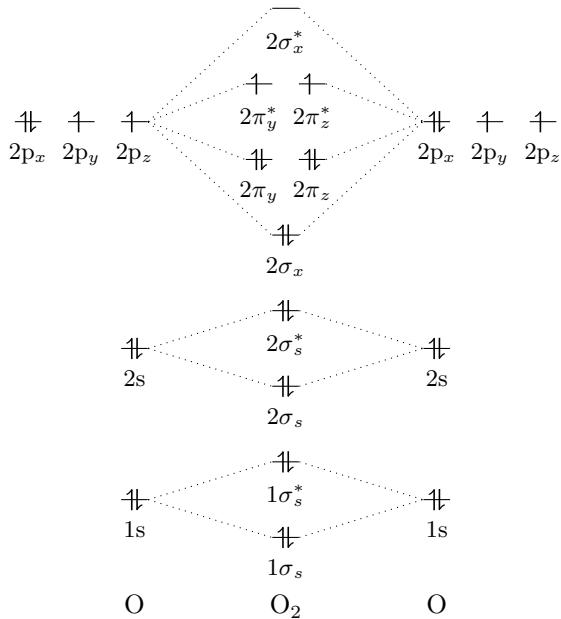
MO Diagram for O_2^+



MO Diagram for O_2^-



MO Diagram for O_2



MO Diagram for O_2^{2-}

