

## Linear Asymmetry in Triatomic Homonuclear Species

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Linear triatomic molecules, in their ground states, typically exhibit symmetry when terminal atoms are identical. However, recent findings may indicate the possibility of asymmetry in such systems. Some evidence points to  $\text{CuCl}_2$  existing with two different Cu-Cl bond lengths. In  $\text{Cr}_2$  systems, potential energy curves show the presence of two minima over varying bond length, which may allow for asymmetry if both stable lengths can be expressed in one triatomic molecule. This work thus studies the effects of varying bond lengths on  $\text{Cu}_3$  and  $\text{Cr}_3$  systems. Computational investigation was performed using the B3PW91 and MP2 methods and the cc-pVTZ basis set. While research is still ongoing, the  $\text{Cu}_3$  energy curve observed at the B3PW91 level strongly points to a centrosymmetrical ground state of the system.

