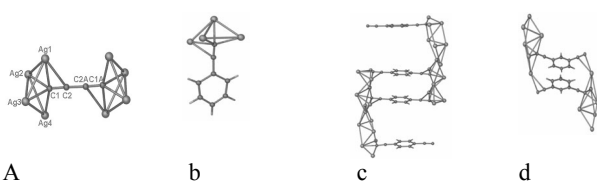


Silver Complexes Containing 1,3-Butadiynediide C_4^{2-} and $Ar(C\equiv C)_n$ ($n = 1, 2$)

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Silver 1,3-butadiynediide (Ag_2C_4), a higher homolog of silver(I) acetylenediide (Ag_2C_2), is a light gray amorphous powder (containing ~25 wt% metallic silver) that is explosive when heated (mp 130°C, dec) and sensitive to mechanical shock.^[1] The syntheses and X-ray analyses of a series of double and multiple salts of Ag_2C_4 have shown that the linear C_4^{2-} dianion invariably exhibits a μ_8 -ligation mode (Figure a), each terminal being capped by four silver atoms in a butterfly or planar configuration that is consolidated by argentophilic interaction. Similar terminal coordination modes are also found in the double salts of silver phenylacetylenide, $Ag(C_6H_5C\equiv C)$ (Figure b), and silver *p*- and *m*-phenylenediethynediide, $Ag_2(C\equiv CC_6H_4C\equiv C)$ (Figure c and d). These results are consistent with the observation that the highest ligation number^[2] of C_4^{2-} is eight, i.e. four at each end.



[1] Zhao L., Mak T.C.W., *J. Am. Chem. Soc.*, 2004, **126**, 6852-6853. [2] Guo G.-C., Mak T.C.W., *Chem. Commun.*, 1999, 813-814.

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