Table S1
Geometrical features for long-distance interactions.

| Hydrogen bonds D-H···A | D···A (Å) | H···A (Å) | ∠D-H···A | | |
|---|---|---|---|---|---|
| *DLMAceMOx* | | | | | |
| O61-H···O2 (1+x, y, z) | 2.744(4) | 1.78(7) | 154(6) | | |
| *[Ag$_2$(DLMAceMOx)$_2$(NO$_3$)$_2$]* | | | | | |
| O61A···O2B (1-x, -y, -z) | 2.840(5) | | | | |
| O61B···O1N | 2.557(5) | | | | |
| O61A···O5N | 2.732(5) | | | | |
| *[Ag$_2$(DLMAceMOx)$_2$(ClO$_4$)$_2$]* | | | | | |
| O61A···O61A (1-x, 2-y, 1-z) | 3.02(1) | | | | |
| O61B···O61B (-x, 2-y, -z) | 2.95(1) | | | | |
| O61A···O7P | 2.70(1) | | | | |
| O61B···O2P | 2.65(1) | | | | |
| *[Ag$_2$(DLMAceMOx)$_2$(CF$_3$SO$_3$)$_2$(CH$_3$CH$_2$OH)]·CH$_3$CH$_2$OH* | | | | | |
| O1R···O2X ($^3/_2$-x, -½+y, ½-z) | 2.775(7) | | | | |
| O1S···O1S (1-x, 2-y, 1-z) | 2.83(1) | | | | |
| O61A···F3X | 3.142(7) | | | | |
| O61A···O1X | 2.707(5) | | | | |
| O61B···O2Y | 2.672(6) | | | | |
| Ring···ring π-interactions | *d*(c$_1$-c$_2$) (Å) | Slippage (Å) | α (°) | β (°) | γ (°) |
| *DLMAceMOx* | | | | | |
| pym···pym (1-x,-y,1-z) | 3.666(3) | 1.305 | 0.0 | 20.8 | 20.8 |
| pyz··· pym (1-x,-y,1-z) | 3.614(3) | 1.147 | 2.1 | 18.5 | 20.3 |
| pyz···pyz (1-x,-1-y,1-z) | 3.736(3) | 1.549 | 0.0 | 24.5 | 24.5 |
| *[Ag$_2$(DLMAceMOx)$_2$(NO$_3$)$_2$]* | | | | | |
| pymB···pymB (1-x,-y,-z) | 3.337(3) | 1.184 | 0.0 | 20.8 | 20.8 |
| *[Ag(DLMAceMOx)$_2$]BF$_4$* | | | | | |
| pymA···pymA (1-x,1-y,-z) | 3.824(4) | 1.764 | 0.0 | 27.5 | 27.5 |
| Y-X···ring π-interactions | d(X···Cg) (Å) | δ (°) | ∠Y-X···Cg (°) | | |
| *DLMAceMOx* | | | | | |
| C2-O2···pyz (1-x,-y,1-z) | 3.610(3) | 24.5 | 69.6(2) | | |
| *[Ag$_2$(DLMAceMOx)$_2$(NO$_3$)$_2$]* | | | | | |
| C2A-O2A···pymB (2-x, ½+y, ½-z) | 2.662(4) | 4.2 | 167.2(4) | | |
| N1N-O1N···pyzA | 2.993(4) | 2.0 | 104.9(3) | | |
| N61B-O61B···chelA | 3.448(4) | 9.4 | 71.3(3) | | |
| *[Ag$_2$(DLMAceMOx)$_2$(ClO$_4$)$_2$]* | | | | | |
| Cl1-O4P···chelA (-x, -½+y, ½-z) | 2.67(1) | 9.3 | 110.4(6) | | |
| Cl2-O6P···pymB (1-x, -½+y, ½-z) | 3.01(1) | 3.0 | 103.8(5) | | |
| Cl2-O8P···pyzB (1-x, -½+y, ½-z) | 2.90(1) | 4.6 | 114.3(5) | | |
| Cl2-O7P···pymB | 3.29(1) | 28.9 | 162.3(6) | | |
| Cl2-O7P···pyzB | 2.95(1) | 15.2 | 121.7(5) | | |
| N61A-O61A···chelB | 3.37(1) | 13.6 | 76.8(6) | | |
| N61B-O61B···chelA | 3.40(1) | 24.9 | 71.4(6) | | |
| *[Ag$_2$(DLMAceMOx)$_2$(CF$_3$SO$_3$)$_2$(CH$_3$CH$_2$OH]·CH$_3$CH$_2$OH* | | | | | |
| C1X-F1X···pyzB ($^3/_2$-x, ½+y, ½-z) | 3.631(6) | 21.1 | 90.8(5) | | |
| C1Y-F2Y···pyzA (½-x, ½+y, ½-z) | 3.052(4) | 8.1 | 139.8(3) | | |
| C1X-F2X···pyzB ($^3/_2$-x, ½+y, ½-z) | 3.258(6) | 22.2 | 107.4(5) | | |
| S1Y-O3Y···pymA (½-x, ½+y, ½-z) | 3.013(5) | 4.9 | 126.4(3) | | |
| S1X-O3X···pymB ($^3/_2$-x, ½+y, ½-z) | 2.863(5) | 8.8 | 161.0(4) | | |
| S1Y-O2Y···pyzA | 3.006(5) | 8.4 | 116.8(2) | | |

| | | | |
|---|---|---|---|
| S1X-O2X···pymB | 2.933(5) | 14.5 | 136.7(3) |
| S1X-O2X···pyzB | 3.246(5) | 28.5 | 128.7(3) |
| N61B-O61B···chelA | 3.288(4) | 13.9 | 74.1(2) |
| N61B-O61B···pymA | 3.675(5) | 29.8 | 111.7(3) |
| *[Ag(DLMAceMOx)$_2$]BF$_4$* | | | |
| B1-F1···pymB | 3.191(6) | 22.5 | 86.8(5) |
| B1-F2···pymB | 3.417(6) | 29.0 | 78.4(5) |
| B1-F2···pyzB | 3.067(6) | 14.6 | 115.6(5) |
| B1-F3···pymA | 2.809(6) | 5.0 | 132.1(5) |
| B1-F3···pymB | 3.074(6) | 21.4 | 91.8(5) |
| C4B-O4B···pyzA | 2.986(6) | 19.6 | 131.1(5) |

| Metal···ring π-interactions | d(Ag···Cg)(Å | δ (°) |
|---|---|---|
| *[Ag$_2$(DLMAceMOx)$_2$(NO$_3$)$_2$]* | | |
| Ag2···chelA | 3.651 | 43.66 |
| *[Ag$_2$(DLMAceMOx)$_2$(ClO$_4$)$_2$]* | | |
| Ag2···chelA | 3.294 | 34.4 |
| Ag2···chelB | 3.644 | 42.7 |
| Ag2···pyzB | 3.738 | 42.3 |
| *[Ag$_2$(DLMAceMOx)$_2$(CF$_3$SO$_3$)$_2$(CH$_3$CH$_2$OH]·CH$_3$CH$_2$OH* | | |
| Ag2···chelA | 3.502 | 42.0 |

Rings are labelled as follows: pym: N1-C2-N3-C4-C4A-C8A; pyz: N5-C6-C7-N8-C8A-C4A; pymA: N1A-C2A-N3A-C4A-C4AA-C8AA; pymB: N1B-C2B-N3B-C4B-C4AB-C8AB; pyzA: N5A-C6A-C7A-N8A-C8AA-C4AA; pyzB: N5B-C6B-C7B-N8B-C8AB-C4AB; chelA: Ag1-O4A-C4A-C4AA-N5A; chelB: Ag1-O4B-C4B-C4AB-N5B. d($c_1$-$c_2$): distance between centroids of rings involved in π-interactions (only those <4 Å are given); α: angle between planes; β and γ: slipping angles between the centroid-centroid vector and the normal to each stacked ring plane; d(X···Cg): distance between the X atom and the centroid of the ring; δ: slipping angle between the X-centroid vector and the normal to the ring.