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# Poly[di-$\mu_3$-azido-$\mu_2$-4,4′-bipyridine-dicopper(I)]

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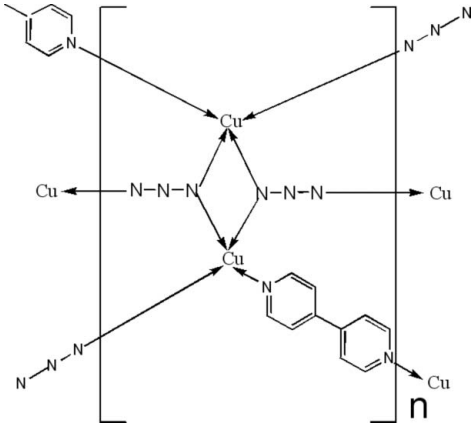
Key indicators: single-crystal X-ray study; $T$ = 293 K; mean $\sigma$(C–C) = 0.004 Å; $R$ factor = 0.035; $wR$ factor = 0.073; data-to-parameter ratio = 15.3.

In the crystal structure of the title compound, $[Cu_2(N_3)_2(C_{10}H_8N_2)]_n$, each $Cu^I$ atom is coordinated by two symmetry-related azide anions and 4,4′-bipyridine (bipy) ligands in a strongly distorted tetrahedral geometry. The Cu atom and the azide anion occupy general positions while the bipy molecule is located on a centre of inversion. Each two symmetry-related copper(I) cations and two symmetry-related azide anions form dimers, which are additionally connected by the anions into layers. These layers are linked by the 4,4′-bipyridine ligands into a three-dimensional coordination network.

## Related literature

For related literature, see: Han *et al.* (2000); Liu *et al.* (1999).




## Experimental

### Crystal data

$[Cu_2(N_3)_2(C_{10}H_8N_2)]$
$M_r$ = 367.32
Monoclinic, $P2_1/n$
$a$ = 8.8107 (18) Å
$b$ = 8.0616 (16) Å
$c$ = 9.2636 (19) Å
$\beta$ = 112.53 (3)°
$V$ = 607.7 (2) Å$^3$
$Z$ = 2
Mo $K\alpha$ radiation
$\mu$ = 3.50 mm$^{-1}$
$T$ = 293 (2) K
0.24 × 0.22 × 0.20 mm

### Data collection

Bruker SMART diffractometer
Absorption correction: multi-scan (*SADABS*; Bruker, 1998)
$T_{min}$ = 0.456, $T_{max}$ = 0.501
6162 measured reflections
1391 independent reflections
1163 reflections with $I > 2\sigma(I)$
$R_{int}$ = 0.034

### Refinement

$R[F^2 > 2\sigma(F^2)]$ = 0.035
$wR(F^2)$ = 0.074
$S$ = 1.14
1391 reflections
91 parameters
H-atom parameters constrained
$\Delta\rho_{max}$ = 0.31 e Å$^{-3}$
$\Delta\rho_{min}$ = −0.28 e Å$^{-3}$

**Table 1**
Selected geometric parameters (Å, °).

| | | | |
|---|---|---|---|
| Cu1—N2 | 1.920 (2) | Cu1—N4$^{ii}$ | 2.381 (2) |
| Cu1—N1 | 1.986 (2) | Cu1—Cu1$^{iii}$ | 3.0061 (9) |
| Cu1—N4$^{i}$ | 2.077 (2) | | |
| N2—Cu1—N1 | 133.23 (10) | N2—Cu1—N4$^{ii}$ | 104.35 (10) |
| N2—Cu1—N4$^{i}$ | 114.75 (10) | N1—Cu1—N4$^{ii}$ | 91.66 (9) |
| N1—Cu1—N4$^{i}$ | 106.83 (9) | N4$^{i}$—Cu1—N4$^{ii}$ | 95.50 (8) |

Symmetry codes: (i) $-x+\frac{1}{2}, y-\frac{1}{2}, -z+\frac{1}{2}$; (ii) $x+\frac{1}{2}, -y+\frac{1}{2}, z+\frac{1}{2}$; (iii) $-x+1, -y, -z+1$.

Data collection: *SMART* (Bruker, 1998); cell refinement: *SAINT* (Bruker, 1998); data reduction: *SHELXTL* (Bruker, 1998); program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997); molecular graphics: *SHELXTL*; software used to prepare material for publication: *SHELXTL*.

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: NC2073).

## References

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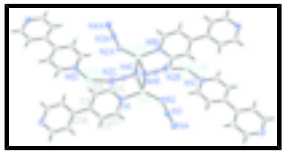

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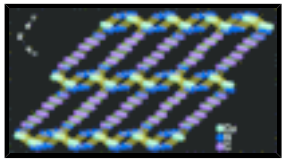

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