

## Retraction of articles by H. Zhong *et al.*

H. Zhong,<sup>a\*</sup> S.-H. Duan,<sup>a</sup> Y.-P. Hong,<sup>a</sup> M.-L. Li,<sup>a</sup> Y.-Q. Liu,<sup>a</sup> C.-J. Luo,<sup>a</sup> Q.-Y. Luo,<sup>a</sup> S.-Z. Xiao,<sup>a</sup> H.-L. Xie,<sup>a</sup> Y.-P. Xu,<sup>a</sup> X.-M. Yang,<sup>b,a</sup> X.-R. Zeng<sup>a</sup> and Q. Y. Zhong<sup>c</sup>

<sup>a</sup>College of Chemistry and Chemical Engineering, Provincial Key Laboratory of Coordination Chemistry, Jinggangshan University, Jian 343009, People's Republic of China, <sup>b</sup>Institute of Applied Materials, Jiangxi University of Finance and Economics, Nanchang 330032, People's Republic of China, and <sup>c</sup>Jian Training School, Jian 343000, People's Republic of China  
Correspondence e-mail: huazhong06@126.com

Received 20 November 2009; accepted 15 December 2009

A series of 41 papers by H. Zhong *et al.* are retracted.

As a result of problems with the data sets and incorrect atom assignments, 41 papers by H. Zhong *et al.* are retracted. Full details of all the articles are given in Table 1.

**Table 1**

Details of articles to be retracted, in order of publication.

Title	Reference	DOI	Refcode
<i>Aquachlorobis(1,10-phenanthroline)cobalt(II) chloride thiourea solvate</i>	Zhong, Zeng, Liu & Luo (2006a)	10.1107/S1600536806041122	KERQEE
<i>cis-Dichlorobis(1,10-phenanthroline)cobalt(II)</i>	Zhong, Zeng & Luo (2006)	10.1107/S1600536806047295	MEQFOE
<i>Tris(quinolin-8-olato-κ<sup>2</sup>N,O)cobalt(III) glyoxal hemisolvate monohydrate</i>	Zhong, Zeng, Liu & Luo (2006b)	10.1107/S1600536806050240	MEQHEW
<i>(8-Quinolinol-κ<sup>2</sup>N,O)bis(8-quinolinolato-κ<sup>2</sup>N,O)nickel(II) glyoxal hemisolvate monohydrate</i>	Zhong, Zeng, Liu & Luo (2007)	10.1107/S1600536806053232	METVUD
<i>Aquachlorobis(1,10-phenanthroline)cobalt(II) chloride thioacetamide solvate</i>	Zhong, Zeng & Luo (2007)	10.1107/S1600536806053530	METQIM
<i>(8-Quinolinol-κ<sup>2</sup>N,O)-bis(8-quinolinolato-κ<sup>2</sup>N,O)zinc(II) glyoxal hemisolvate monohydrate</i>	Zhong, Zeng, Luo, Li & Xiao (2007)	10.1107/S1600536807001171	DEXTEG
<i>(Dimethylglyoxime-κ<sup>2</sup>N,N')bis(1,10-phenanthroline-κ<sup>2</sup>N,N')nickel(II) dinitrate dihydrate</i>	Zhong, Zeng, Yang, Luo & Li (2007a)	10.1107/S1600536807004102	YEYGOZ
<i>(Dimethylglyoxime-κ<sup>2</sup>N,N')bis(1,10-phenanthroline-κ<sup>2</sup>N,N')zinc(II) dinitrate dihydrate</i>	Zhong, Zeng, Yang, Luo & Li (2007b)	10.1107/S1600536807004096	YEYGUF
<i>Chloridobis(1,10-phenanthroline-κN,N')copper(I) hexahydrate</i>	Zhong, Zeng, Yang, Luo & Xiao (2007)	10.1107/S160053680700791X	HEGKOU1
<i>Tetrakis(pyridine-κN)bis(thiocyanato-κN)cobalt(II)</i>	Zhong, Zeng, Yang & Luo (2007a)	10.1107/S1600536807017461	ITPCOO1
<i>Tetrakis(pyridine-κN)bis(thiocyanato-κN)copper(II)</i>	Zhong, Zeng, Yang & Luo (2007b)	10.1107/S160053680701879X	AVUJEG02
<i>Tetrakis(nitrato-κ<sup>2</sup>O,O')bis(4-phenylpyridine-κN)cerium(IV)</i>	Zhong, Zeng, Yang & Luo (2007c)	10.1107/S1600536807018831	CICDOI
<i>Bis(4,4'-bipyridine-κ<sup>2</sup>N,N')tetrakis(nitrato-κ<sup>2</sup>O,O')cerium(IV)</i>	Zhong, Zeng, Yang & Luo (2007d)	10.1107/S1600536807021502	YIDNEF
<i>(1,10-Phenanthroline)tris(phenoxyacetato)lanthanum(III)</i>	Zhong, Zeng, Yang, Luo & Xu (2007)	10.1107/S1600536807027171	EDUROL
<i>(1,10-Phenanthroline)tris(phenoxyacetato)cerium(III)</i>	Zhong, Yang, Luo & Xu (2007a)	10.1107/S1600536807028061	EDUTUT
<i>(1,10-Phenanthroline)tri(3-phenylpropanoato)lanthanum(III)</i>	Zhong, Yang, Luo & Xu (2007b)	10.1107/S1600536807028693	RIGQEE
<i>(1,10-Phenanthroline-κ<sup>2</sup>N,N')tris(phenoxyacetato)-κO;κO;κO,O'-neodymium(III)</i>	Zhong, Yang, Luo & Xu (2007c)	10.1107/S1600536807030371	UDUMEM
<i>Bis(2,2'-bipyridyl-κ<sup>2</sup>N,N')bis(thiocyanato-κN)nickel(II)</i>	Zhong, Yang, Luo & Xu (2007d)	10.1107/S1600536807031613	YEJGOJ01
<i>Bis(2,2'-bipyridyl-κ<sup>2</sup>N,N')bis(isothiocyanato-κN)copper(II)</i>	Zhong, Yang, Luo & Xu (2007e)	10.1107/S1600536807033181	UFAPOH
<i>Bis(2,2'-bipyridyl-κ<sup>2</sup>N,N')bis(thiocyanato-κN)zinc(II)</i>	Zhong, Yang, Luo & Xu (2007f)	10.1107/S1600536807035337	TIGFAR
<i>(1,10-Phenanthroline-κ<sup>2</sup>N,N')tris(3-phenylpropanoato-κO)neodymium(III)</i>	Zhong, Yang, Luo & Xu (2007g)	10.1107/S1600536807035350	TIGFEV
<i>2-Fluoro-3,5-dinitrobenzamide monohydrate</i>	Zhong, Yang, Xie & Luo (2007j)	10.1107/S1600536807038676	VIKGAY
<i>2-Fluoro-3,5-dinitrobenzoic acid-ammonia (1/1)</i>	Zhong, Yang, Xie & Luo (2007k)	10.1107/S1600536807039724	KILKIA
<i>1-Hydroxy-4,6-dinitropyridine-2-carboxamide monohydrate</i>	Zhong, Yang, Xie & Luo (2007l)	10.1107/S1600536807040779	AFETAH
<i>N-(2-Hydroxyphenyl)carbamic acid-ammonia (1/1)</i>	Zhong, Yang, Xie & Luo (2007m)	10.1107/S160053680704086X	AFINAF
<i>catena-Poly[[bis(μ-anilinoacetato-κ<sup>2</sup>O:O')bis(μ-anilinoacetato-κ<sup>2</sup>O:O')bis(1,10-phenanthroline-κ<sup>2</sup>N,N')samarium(III)]-μ-anilinoacetato-κ<sup>2</sup>O:O']</i>	Zhong, Yang, Xie & Luo (2007a)	10.1107/S1600536807043528	PILDAQ
<i>2-Hydroxy-5-nitrobenzene-1,3-dicarboxylic acid monohydrate</i>	Zhong, Yang, Xie & Luo (2007n)	10.1107/S1600536807045199	XILWIZ
<i>catena-Poly[[tetra-μ-anilinoacetato-bis(1,10-phenanthroline)-dineodymium(III)]-di-μ-anilinoacetato]</i>	Zhong, Yang, Xie & Luo (2007b)	10.1107/S1600536807048489	WIMWEV
<i>Hexaaquacopper(II) bis(4-methylbenzenesulfonate)</i>	Zhong, Yang, Xie & Luo (2007c)	10.1107/S1600536807049525	TOLSCV01

**Table 1 (continued)**

Title	Reference	DOI	Refcode
<i>catena-Poly[[tetra-μ-anilinoacetato-bis(1,10-phenanthroline)-dilanthanum(III)]-di-μ-anilinoacetato]</i>	Zhong, Yang, Xie & Luo (2007d)	10.1107/S1600536807051240	GIMZEI
<i>Hexaaquachromium(II) bis(4-methylbenzenesulfonate)</i>	Zhong, Yang, Xie & Luo (2007e)	10.1107/S1600536807051227	GIMZIM
<i>Hexaaquamanganese(II) bis(4-methylbenzenesulfonate)</i>	Zhong, Yang, Xie & Luo (2007f)	10.1107/S1600536807052051	QUKQES01
<i>catena-Poly[(acetato-κO)(1,10-phenanthroline-κ<sup>2</sup>N,N')cobalt(II)]-μ-acetato-κ<sup>2</sup>O:O']</i>	Zhong, Yang, Xie & Luo (2007g)	10.1107/S1600536807053494	NIQLAB
<i>Hexaaquanickel(II) bis(4-aminobenzenesulfonate)</i>	Zhong, Zhong, Xie & Luo (2007a)	10.1107/S1600536807054372	HIPZOW
<i>catena-Poly[(acetato-κO)(1,10-phenanthroline-κ<sup>2</sup>N,N')copper(II)]-μ-acetato-κ<sup>2</sup>O:O']</i>	Zhong, Yang, Xie & Luo (2007h)	10.1107/S160053680705622X	XIRGOV
<i>Hexaaquazinc(II) bis(4-aminobenzenesulfonate)</i>	Zhong, Zhong, Xie & Luo (2007b)	10.1107/S1600536807056498	XIRJEO
<i>catena-Poly[(acetato-κO)(1,10-phenanthroline-κ<sup>2</sup>N,N')nickel(II)]-μ-acetato-κ<sup>2</sup>O:O']</i>	Zhong, Yang, Xie & Luo (2007i)	10.1107/S1600536807058540	HIQJOH
<i>Hexaaquacobalt(II) bis(4-aminobenzenesulfonate)</i>	Zhong, Xie & Luo (2007)	10.1107/S1600536807058527	HIQJUN
<i>catena-Poly[[tetra-μ-anilinoacetato-bis(1,10-phenanthroline)-dieuropium(III)]-di-μ-anilinoacetato]</i>	Zhong, Yang, Duan & Hong (2007)	10.1107/S1600536807060643	YIQMAN
<i>(Dimethylglyoxime-κ<sup>2</sup>N,N')bis(1,10-phenanthroline-κ<sup>2</sup>N,N')copper(II) dintrate dihydrate</i>	Zhong, Yang, Luo & Li (2007)	10.1107/S1600536807061193	YIQNUI
<i>catena-Poly[(1,10-phenanthroline-κ<sup>2</sup>N,N')praseodymium(III)]-di-μ-phenoxyacetato-κ<sup>4</sup>O:O'-[(1,10-phenanthroline-κ<sup>2</sup>N,N')praseodymium(III)]-di-μ-phenoxyacetato-κ<sup>4</sup>O:O'-di-μ-phenoxyacetato-κ<sup>3</sup>O,O':O;κ<sup>3</sup>O:O,O']</i>	Zhong, Yang, Luo & Xu (2008)	10.1107/S1600536807068614	GISJIC

## References

Zhong, H., Xie, H.-L. & Luo, C.-J. (2007). *Acta Cryst.* **E63**, m3054.

Zhong, H., Yang, X.-M., Duan, S.-H. & Hong, Y.-P. (2007). *Acta Cryst.* **E63**, m3142–m3143.

Zhong, H., Yang, X.-M., Luo, C.-J. & Li, M.-L. (2007). *Acta Cryst.* **E63**, m3160–m3161.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007a). *Acta Cryst.* **E63**, m1885–m1886.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007b). *Acta Cryst.* **E63**, m1909.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007c). *Acta Cryst.* **E63**, m2019.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007d). *Acta Cryst.* **E63**, m2062.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007e). *Acta Cryst.* **E63**, m2141.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007f). *Acta Cryst.* **E63**, m2208.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007g). *Acta Cryst.* **E63**, m2209–m2210.

Zhong, H., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2008). *Acta Cryst.* **E64**, m317–m318.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007a). *Acta Cryst.* **E63**, m2508–m2509.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007b). *Acta Cryst.* **E63**, m2680–m2681.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007c). *Acta Cryst.* **E63**, m2724–m2725.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007d). *Acta Cryst.* **E63**, m2772–m2773.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007e). *Acta Cryst.* **E63**, m2774.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007f). *Acta Cryst.* **E63**, m2825.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007g). *Acta Cryst.* **E63**, m2895–m2896.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007h). *Acta Cryst.* **E63**, m2979.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007i). *Acta Cryst.* **E63**, m3053.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007j). *Acta Cryst.* **E63**, o3780.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007k). *Acta Cryst.* **E63**, o3831.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007l). *Acta Cryst.* **E63**, o3881.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007m). *Acta Cryst.* **E63**, o3882.

Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007n). *Acta Cryst.* **E63**, o4191.

Zhong, H., Zeng, X.-R., Liu, Y.-Q. & Luo, Q.-Y. (2006a). *Acta Cryst.* **E62**, m2925–m2927.

Zhong, H., Zeng, X.-R., Liu, Y.-Q. & Luo, Q.-Y. (2006b). *Acta Cryst.* **E62**, m3557–m3559.

Zhong, H., Zeng, X.-R., Liu, Y.-Q. & Luo, Q.-Y. (2007). *Acta Cryst.* **E63**, m187–m189.

Zhong, H., Zeng, X.-R. & Luo, Q.-Y. (2006). *Acta Cryst.* **E62**, m3330–m3332.

Zhong, H., Zeng, X.-R. & Luo, Q.-Y. (2007). *Acta Cryst.* **E63**, m221–m223.

Zhong, H., Zeng, X.-R., Luo, Q.-Y., Li, M.-L. & Xiao, S.-Z. (2007). *Acta Cryst.* **E63**, m492–m494.

Zhong, H., Zeng, X.-R., Yang, X.-M. & Luo, Q.-Y. (2007a). *Acta Cryst.* **E63**, m1379.

Zhong, H., Zeng, X.-R., Yang, X.-M. & Luo, Q.-Y. (2007b). *Acta Cryst.* **E63**, m1445.

Zhong, H., Zeng, X.-R., Yang, X.-M. & Luo, Q.-Y. (2007c). *Acta Cryst.* **E63**, m1455.

Zhong, H., Zeng, X.-R., Yang, X.-M. & Luo, Q.-Y. (2007d). *Acta Cryst.* **E63**, m1592–m1593.

Zhong, H., Zeng, X.-R., Yang, X.-M., Luo, Q.-Y. & Li, M.-L. (2007a). *Acta Cryst.* **E63**, m639–m641.

Zhong, H., Zeng, X.-R., Yang, X.-M., Luo, Q.-Y. & Li, M.-L. (2007b). *Acta Cryst.* **E63**, m642–m644.

Zhong, H., Zeng, X.-R., Yang, X.-M., Luo, Q.-Y. & Xiao, S.-Z. (2007). *Acta Cryst.* **E63**, m826–m828.

Zhong, H., Zeng, X.-R., Yang, X.-M., Luo, Q.-Y. & Xu, Y.-P. (2007). *Acta Cryst.* **E63**, m1868–m1869.

Zhong, H., Zhong, Q. Y., Xie, H.-L. & Luo, C.-J. (2007a). *Acta Cryst.* **E63**, m2913–m2914.

Zhong, H., Zhong, Q.-Y., Xie, H.-L. & Luo, C.-J. (2007b). *Acta Cryst.* **E63**, m2990.

**catena-Poly[[[(1,10-phenanthroline- $\kappa^2N,N'$ )praseodymium(III)]-di- $\mu$ -phenoxyacetato- $\kappa^4O:O'$ -[(1,10-phenanthroline- $\kappa^2N,N'$ )praseodymium(III)]-di- $\mu$ -phenoxyacetato- $\kappa^4O:O'$ -di- $\mu$ -phenoxyacetato- $\kappa^3O,O':O$ ;  $\kappa^3O:O,O'$ ]**

H. Zhong,<sup>a\*</sup> X.-M. Yang,<sup>b</sup> Q.-Y. Luo<sup>a</sup> and Y.-P. Xu<sup>a</sup>

<sup>a</sup>College of Chemistry and Chemical Engineering, Provincial Key Laboratory of Coordination Chemistry, Jinggangshan University, Jian 343009, People's Republic of China, and <sup>b</sup>Institute of Applied Materials, Jiangxi University of Finance and Economics, Nanchang 330032, People's Republic of China  
Correspondence e-mail: huazhong06@126.com

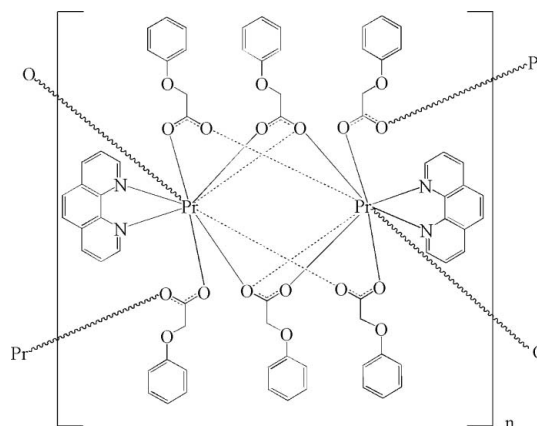
Received 15 May 2007; accepted 28 December 2007

Key indicators: single-crystal X-ray study;  $T = 273$  K; mean  $\sigma(C-C) = 0.008$  Å; H-atom completeness 83%; disorder in main residue;  $R$  factor = 0.037;  $wR$  factor = 0.097; data-to-parameter ratio = 17.1.

The title complex,  $[Pr_2(C_8H_7O_3)_6(C_{12}H_8N_2)_2]_n$ , which has an inversion centre midway between the two  $Pr^{III}$  atoms of the structural unit, forms a one-dimensional polymer bridged alternately by either two bidentate, or two bidentate and two terdentate, phenoxyacetate carboxylate groups. Each  $Pr^{III}$  atom is thus nine-coordinated by two N atoms of a 1,10-phenanthroline ligand and seven O atoms from six phenoxyacetate ligands. The coordination geometry at the  $Pr^{III}$  atom is distorted tricapped trigonal prismatic. One phenyl ring is disordered over two positions; the site occupancy factors are *ca* 0.6 and 0.4.

## Related literature

For related literature, see: Allen *et al.* (1987); Daiguebonne *et al.* (2000); Farrugia *et al.* (2000); Kay *et al.* (1972); Ma *et al.* (1999); Mao *et al.* (1998); Starynowicz (1991, 1993); Tsukube & Shinoda (2002); Zhang *et al.* (2005); Zeng *et al.* (2000); Zhong *et al.* (2007).



## Experimental

### Crystal data

$[Pr_2(C_8H_7O_3)_6(C_{12}H_8N_2)_2]$   
 $M_r = 1549.04$   
Monoclinic,  $P2_1/n$   
 $a = 20.204$  (4) Å  
 $b = 8.499$  (4) Å  
 $c = 20.799$  (3) Å  
 $\beta = 107.198$  (6)°

$V = 3411.8$  (17) Å<sup>3</sup>  
 $Z = 2$   
Mo  $K\alpha$  radiation  
 $\mu = 1.49$  mm<sup>-1</sup>  
 $T = 273$  (2) K  
0.33 × 0.12 × 0.08 mm

### Data collection

Bruker APEXII area-detector diffractometer  
Absorption correction: multi-scan (SADABS; Sheldrick, 1996)  
 $T_{min} = 0.642$ ,  $T_{max} = 0.890$

27763 measured reflections  
7712 independent reflections  
5037 reflections with  $I > 2\sigma(I)$   
 $R_{int} = 0.043$

### Refinement

$R[F^2 > 2\sigma(F^2)] = 0.036$   
 $wR(F^2) = 0.097$   
 $S = 0.90$   
7712 reflections  
452 parameters

144 restraints  
H-atom parameters constrained  
 $\Delta\rho_{max} = 1.03$  e Å<sup>-3</sup>  
 $\Delta\rho_{min} = -0.64$  e Å<sup>-3</sup>

**Table 1**

Selected geometric parameters (Å, °).

Pr1—O1	2.489 (2)	Pr1—O7	2.409 (3)
Pr1—O2 <sup>i</sup>	2.535 (2)	Pr1—O8 <sup>ii</sup>	2.545 (3)
Pr1—O4	2.565 (2)	Pr1—N1	2.753 (3)
Pr1—O5	2.817 (3)	Pr1—N2	2.720 (3)
Pr1—O5 <sup>i</sup>	2.449 (2)		
O1—Pr1—O4	73.62 (8)	O5—Pr1—N1	102.34 (9)
O1—Pr1—O5	65.11 (8)	O7—Pr1—N1	77.09 (9)
O1—Pr1—O7	145.88 (9)	O1—Pr1—N2	81.11 (9)
O4—Pr1—O5	48.17 (8)	O4—Pr1—N2	74.08 (9)
O4—Pr1—O7	138.84 (9)	O5—Pr1—N2	118.22 (8)
O5—Pr1—O7	139.57 (8)	O7—Pr1—N2	96.74 (9)
O1—Pr1—N1	127.55 (9)	N1—Pr1—N2	59.78 (10)
O4—Pr1—N1	63.48 (9)		

Symmetry codes: (i)  $-x + 2, -y, -z + 2$ ; (ii)  $-x + 2, -y + 1, -z + 2$ .

**Table 2**  
Hydrogen-bond geometry (Å, °).

$D-H\cdots A$	$D-H$	$H\cdots A$	$D\cdots A$	$D-H\cdots A$
$C1-H1\cdots O2^i$	0.93	2.46	3.147 (5)	130
$C10-H10\cdots O4^{iii}$	0.93	2.34	3.211 (5)	156
$C12-H12\cdots O8^{ii}$	0.93	2.47	3.063 (5)	122
$C22-H22B\cdots O7^{iv}$	0.97	2.41	3.353 (5)	166

Symmetry codes: (i)  $-x+2, -y, -z+2$ ; (ii)  $-x+2, -y+1, -z+2$ ; (iii)  $-x+\frac{3}{2}, y+\frac{1}{2}, -z+\frac{3}{2}$ ; (iv)  $x, y-1, z$ .

Data collection: *SMART* (Siemens, 1996); cell refinement: *SAINTE* (Siemens, 1996); data reduction: *SAINTE*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 2008); program(s) used to refine structure: *SHELXL97* (Sheldrick, 2008); molecular graphics: *SHELXTL* (Siemens, 1996); software used to prepare material for publication: *SHELXTL*.

This work was supported by the Science and Technology Bureau of Jian, Jiangxi Province, China (grant No. 20052817).

Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: RT2009).

## References

- Allen, F. H., Kennard, O., Watson, D. G., Brammer, L., Orpen, A. G. & Taylor, R. (1987). *J. Chem. Soc. Perkin Trans. 2*, pp. S1–19.
- Daiguebonne, C., Guillou, O. & Boubekeur, K. (2000). *Inorg. Chim. Acta*, **304**, 161–169.
- Farrugia, L. J., Peacock, R. D. & Stewart, B. (2000). *Acta Cryst.* **C56**, e435–e436.
- Kay, J., Moore, J. W. & Glick, M. D. (1972). *Inorg. Chem.* **11**, 2818–2827.
- Ma, L., Evans, O. R., Foxman, B. M. & Lin, W. B. (1999). *Inorg. Chem.* **38**, 5837–5840.
- Mao, J. G., Zhang, H. J., Ni, J. Z., Wang, S. B. & Mak, T. C. W. (1998). *J. Chem. Crystallogr.* **17**, 3999–4009.
- Sheldrick, G. M. (1996). *SADABS*. University of Göttingen, Germany.
- Sheldrick, G. M. (2008). *Acta Cryst.* **A64**, 112–122.
- Siemens (1996). *SMART, SAINT and SHELXTL*. Siemens Analytical X-ray Instruments Inc., Madison, Wisconsin, USA.
- Starynowicz, P. (1991). *Acta Cryst.* **C47**, 294–297.
- Starynowicz, P. (1993). *Acta Cryst.* **C49**, 1895–1897.
- Tsukube, H. & Shinoda, S. (2002). *Chem. Rev.* **102**, 2389–2404.
- Zeng, X.-R., Xu, Y., Xiong, R.-G., Zhang, L.-J. & You, X.-Z. (2000). *Acta Cryst.* **C56**, e325–e326.
- Zhang, Z.-H., Shen, Z.-L., Okamura, T.-A., Zhu, H.-F., Sun, W.-Y. & Ueyama, N. (2005). *Cryst. Growth Des.* **5**, 1191–1197.
- Zhong, H., Yang, X.-M., Xie, H.-L. & Luo, C.-J. (2007). *Acta Cryst.* **E63**, m2508–m2509.

Article retracted

**supplementary materials**

**Article retracted**

*Acta Cryst.* (2008). E64, m317-m318 [ doi:10.1107/S1600536807068614 ]

***catena*-Poly[[*(1,10-phenanthroline-κ<sup>2</sup>N,N')*praseodymium(III)]-*di-μ-phenoxyacetato-κ<sup>4</sup>O:O'*-*[(1,10-phenanthroline-κ<sup>2</sup>N,N')*praseodymium(III)]-*di-μ-phenoxyacetato-κ<sup>4</sup>O:O'*-*di-μ-phenoxyacetato-κ<sup>3</sup>O,O':O;κ<sup>3</sup>O:O,O'*]**

**H. Zhong, X.-M. Yang, Q.-Y. Luo and Y.-P. Xu**

### Comment

In recent years, there has been great interest in the synthesis of metal organic frameworks (MOFs) with organic ligands and rare earth metals because of their novel structures, fascinating properties and important roles in special materials with potential optical, electronic, magnetic and biological applications (Daiguebonne *et al.*, 2000; Farrugia *et al.*, 2000; Tsukube & Shinoda, 2002; Zhang *et al.*, 2005). These compounds are usually prepared by the reaction of rare-earth metal ions with bi- or multidentate ligands (Starynowicz, 1991, 1993; Kay *et al.*, 1972; Ma *et al.*, 1999; Zeng *et al.*, 2000; Mao *et al.*, 1998). We report herein the crystal structure of the title compound, (I).

In the molecular unit of (I) (Fig. 1), the ligand bond lengths and angles are within normal ranges (Allen *et al.*, 1987). The Pr<sup>III</sup> metal centres are bridged alternatively either by two bidentate, or by two terdentate and two bidentate, phenoxyacetate carboxylate groups with an inversion centre between them. Each Pr atom is nine-coordinated by two N atoms of the 1,10-phenanthroline ligand and seven O atoms from six phenoxyacetate ligands (Table 1), and the coordination geometry at the Pr atom forms a tricapped trigonal prism. The Pr—O bond lengths are in the range 2.409 (3) to 2.817 (3) Å. The Pr—N bond lengths are in the range 2.720 (3) to 2.753 (3) Å. Hydrogen bonds between C—H groups and O atoms of neighbouring phenoxyacetate ligands, with C...O distances of 3.063 (5) to 3.353 (5) Å, generate a layered hydrogen-bonded network (Table 2).

### Experimental

The title compound was synthesized using the hydrothermal method in a 23 ml Teflon-lined Parr bomb, which was then sealed. Praseodymium(III) chloride hexahydrate (71.1 mg, 0.2 mmol), 1,10-phenanthroline (39.6 mg, 0.2 mmol), phenoxyacetic acid (91.3 mg, 0.6 mmol), sodium hydroxide (24 mg, 0.6 mmol) and distilled water (4 g) were placed into the bomb and sealed. The bomb was then heated under autogenous pressure for 7 d at 413 K and allowed to cool at room temperature for 24 h. Upon opening the bomb, a clear colorless solution was decanted from small green crystals. These crystals were washed with distilled water followed by ethanol, and allowed to air-dry at room temperature (yield: 72.7 mg, 36%).

### Refinement

H atoms were positioned geometrically, with C—H = 0.93–0.97 Å, and constrained to ride on their parent atoms, with  $U_{iso}(H) = 1.2U_{eq}(C)$ . The phenyl ring defined by C23–C28 shows and in-plane disorder of *ca* 0.4:0.6, and the two phenyl fragments (A and B) were refined as restrained rigid groups, allowing the population to vary. The hydrogen atoms on the disordered phenyl ring were not placed, and as a result of the disorder, slightly larger thermal parameters were observed on the periphery of the molecule.

Figures

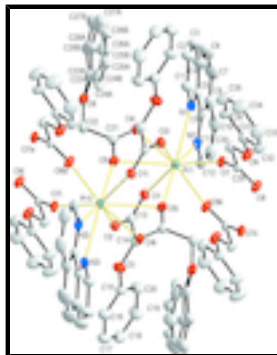


Fig. 1. The molecular structure of the title molecule, with the atom-numbering scheme. Displacement ellipsoids are drawn at the 20% probability level [for symmetry codes, see Table 1]. All H atoms have been omitted for clarity.

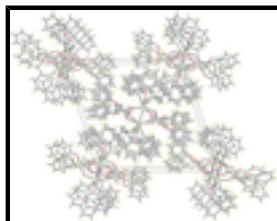


Fig. 2. View along the *b* axis showing one dimensional polymeric structure, linked by H-bonding.

**catena-Poly**[[**(1,10-phenanthroline- $\kappa^2N,N'$ )praseodymium(III)-di- $\mu$ -phenoxyacetato- $\kappa^4O:O'$ -[(1,10-phenanthroline- $\kappa^2N,N'$ )praseodymium(III)]-di- $\mu$ -phenoxyacetato- $\kappa^4O:O'$ -di- $\mu$ -phenoxyacetato- $\kappa^3O,O':O;\kappa^3O:O,O'$ ]**]

*Crystal data*

[Pr<sub>2</sub>(C<sub>8</sub>H<sub>7</sub>O<sub>3</sub>)<sub>6</sub>(C<sub>12</sub>H<sub>8</sub>N<sub>2</sub>)<sub>2</sub>]

*M<sub>r</sub>* = 1549.04

Monoclinic, *P*2<sub>1</sub>/*n*

Hall symbol: -*P* 2yn

*a* = 20.204 (4) Å

*b* = 8.499 (4) Å

*c* = 20.799 (3) Å

$\beta$  = 107.198 (6)°

*V* = 3411.8 (17) Å<sup>3</sup>

*Z* = 2

*F*(000) = 1560

*D<sub>x</sub>* = 1.508 Mg m<sup>-3</sup>

Mo *K* $\alpha$  radiation,  $\lambda$  = 0.71073 Å

Cell parameters from 9075 reflections

$\theta$  = 2.4–26.9°

$\mu$  = 1.49 mm<sup>-1</sup>

*T* = 273 K

Needle, green

0.33 × 0.12 × 0.08 mm

*Data collection*

Bruker APEXII area-detector diffractometer

Radiation source: fine-focus sealed tube graphite

$\varphi$  and  $\omega$  scans

Absorption correction: multi-scan (*SADABS*; Sheldrick, 1996)

*T<sub>min</sub>* = 0.642, *T<sub>max</sub>* = 0.891

27763 measured reflections

7712 independent reflections

5037 reflections with *I* > 2 $\sigma$ (*I*)

*R<sub>int</sub>* = 0.043

$\theta_{\max}$  = 27.5°,  $\theta_{\min}$  = 2.1°

*h* = -26→25

*k* = -10→11

*l* = -26→26

Refinement

Refinement on $F^2$	Primary atom site location: structure-invariant direct methods
Least-squares matrix: full	Secondary atom site location: difference Fourier map
$R[F^2 > 2\sigma(F^2)] = 0.036$	Hydrogen site location: inferred from neighbouring sites
$wR(F^2) = 0.097$	H-atom parameters constrained
$S = 0.90$	$w = 1/[\sigma^2(F_o^2) + (0.0573P)^2 + 0.9707P]$
7712 reflections	where $P = (F_o^2 + 2F_c^2)/3$
452 parameters	$(\Delta/\sigma)_{\max} = 0.002$
144 restraints	$\Delta\rho_{\max} = 1.04 \text{ e } \text{\AA}^{-3}$
	$\Delta\rho_{\min} = -0.64 \text{ e } \text{\AA}^{-3}$

Special details

**Geometry.** All e.s.d.'s (except the e.s.d. in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell e.s.d.'s are taken into account individually in the estimation of e.s.d.'s in distances, angles and torsion angles; correlations between e.s.d.'s in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell e.s.d.'s is used for estimating e.s.d.'s involving l.s. planes.

**Refinement.** Refinement of  $F^2$  against ALL reflections. The weighted  $R$ -factor  $wR$  and goodness of fit  $S$  are based on  $F^2$ , conventional  $R$ -factors  $R$  are based on  $F$ , with  $F$  set to zero for negative  $F^2$ . The threshold expression of  $F^2 > \sigma(F^2)$  is used only for calculating  $R$ -factors(gt) *etc.* and is not relevant to the choice of reflections for refinement.  $R$ -factors based on  $F^2$  are statistically about twice as large as those based on  $F$ , and  $R$ -factors based on ALL data will be even larger.

Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters ( $\text{\AA}^2$ )

	$x$	$y$	$z$	$U_{\text{iso}}^*/U_{\text{eq}}$	Occ. (<1)
Pr1	0.931206 (10)	0.19065 (2)	0.964285 (9)	0.03966 (8)	
O1	0.97069 (13)	0.0604 (3)	0.87489 (11)	0.0491 (6)	
O2	1.06691 (13)	-0.0826 (3)	0.92159 (12)	0.0516 (6)	
O3	1.11827 (15)	-0.0166 (4)	0.82183 (14)	0.0691 (8)	
O4	0.84633 (12)	-0.0358 (3)	0.91883 (12)	0.0466 (6)	
O5	0.94657 (13)	-0.1383 (3)	0.97718 (12)	0.0518 (7)	
O6	0.78462 (16)	-0.3257 (3)	0.89785 (16)	0.0648 (8)	
O7	0.94001 (13)	0.4205 (3)	1.03407 (12)	0.0500 (6)	
O8	1.00785 (15)	0.6123 (3)	1.09093 (12)	0.0590 (7)	
O9	0.98717 (16)	0.5273 (3)	1.20640 (13)	0.0645 (8)	
N1	0.79697 (17)	0.2344 (4)	0.96683 (16)	0.0506 (8)	
N2	0.83406 (18)	0.3071 (3)	0.85447 (15)	0.0498 (8)	
C1	0.7781 (2)	0.1926 (5)	1.0199 (2)	0.0643 (12)	
H1	0.8126	0.1707	1.0598	0.077*	
C2	0.7089 (3)	0.1797 (6)	1.0195 (3)	0.0840 (16)	
H2	0.6978	0.1495	1.0580	0.101*	
C3	0.6575 (3)	0.2127 (7)	0.9606 (4)	0.0962 (19)	
H3	0.6112	0.2043	0.9591	0.115*	

## supplementary materials

---

C4	0.6746 (2)	0.2581 (7)	0.9041 (3)	0.0772 (14)	
C5	0.7458 (2)	0.2679 (5)	0.9084 (2)	0.0541 (10)	
C6	0.6231 (3)	0.2967 (8)	0.8409 (4)	0.111 (2)	
H6	0.5763	0.2879	0.8372	0.133*	
C7	0.6424 (3)	0.3448 (8)	0.7880 (3)	0.106 (2)	
H7	0.6085	0.3727	0.7487	0.127*	
C8	0.7134 (3)	0.3547 (6)	0.7899 (2)	0.0727 (14)	
C9	0.7660 (2)	0.3102 (4)	0.8506 (2)	0.0536 (10)	
C10	0.7358 (3)	0.4037 (6)	0.7367 (2)	0.0878 (17)	
H10	0.7036	0.4392	0.6975	0.105*	
C11	0.8031 (3)	0.4012 (6)	0.7405 (2)	0.0819 (15)	
H11	0.8175	0.4331	0.7040	0.098*	
C12	0.8524 (3)	0.3492 (5)	0.8009 (2)	0.0644 (12)	
H12	0.8989	0.3448	0.8028	0.077*	
C13	1.0286 (2)	0.0032 (4)	0.87703 (17)	0.0442 (9)	
C14	1.0524 (2)	0.0512 (5)	0.81759 (19)	0.0564 (10)	
H14A	1.0186	0.0170	0.7763	0.068*	
H14B	1.0557	0.1649	0.8163	0.068*	
C15	1.1460 (2)	0.0142 (6)	0.7704 (2)	0.0646 (12)	
C16	1.2081 (3)	-0.0565 (7)	0.7766 (3)	0.0808 (14)	
H16	1.2289	-0.1179	0.8141	0.097*	
C17	1.2403 (3)	-0.0368 (7)	0.7268 (3)	0.0955 (18)	
H17	1.2827	-0.0850	0.7309	0.115*	
C18	1.2101 (4)	0.0526 (7)	0.6722 (3)	0.104 (2)	
H18	1.2318	0.0650	0.6388	0.124*	
C19	1.1491 (4)	0.1238 (8)	0.6659 (3)	0.109 (2)	
H19	1.1291	0.1856	0.6282	0.130*	
C20	1.1148 (3)	0.1059 (7)	0.7157 (3)	0.0847 (16)	
H20	1.0725	0.1548	0.7114	0.102*	
C21	0.8840 (2)	-0.1509 (5)	0.93913 (18)	0.0457 (9)	
C22	0.8576 (2)	-0.3140 (5)	0.9189 (2)	0.0573 (10)	
H22A	0.8750	-0.3490	0.8825	0.069*	
H22B	0.8760	-0.3842	0.9567	0.069*	
C23A	0.75531 (19)	-0.3041 (3)	0.9521 (2)	0.079 (6)	0.384 (14)
C24A	0.79664 (17)	-0.2697 (2)	1.0169 (2)	0.076 (5)	0.384 (14)
C25A	0.7671 (2)	-0.2571 (3)	1.0691 (2)	0.101 (6)	0.384 (14)
C26A	0.6962 (3)	-0.2790 (4)	1.0566 (3)	0.110 (6)	0.384 (14)
C27A	0.65490 (19)	-0.3133 (3)	0.9918 (3)	0.126 (7)	0.384 (14)
C28A	0.68444 (18)	-0.3259 (3)	0.9396 (2)	0.120 (6)	0.384 (14)
C23B	0.7508 (2)	-0.3175 (3)	0.9425 (2)	0.077 (4)	0.616 (14)
C24B	0.77565 (17)	-0.2805 (2)	1.0105 (2)	0.112 (4)	0.616 (14)
C25B	0.7302 (2)	-0.2706 (3)	1.0492 (2)	0.120 (4)	0.616 (14)
C26B	0.6599 (2)	-0.2977 (4)	1.0198 (3)	0.133 (5)	0.616 (14)
C27B	0.63499 (18)	-0.3347 (3)	0.9518 (3)	0.115 (4)	0.616 (14)
C28B	0.6804 (2)	-0.3446 (3)	0.9132 (2)	0.086 (3)	0.616 (14)
C29	0.96861 (15)	0.4991 (3)	1.08649 (13)	0.0453 (9)	
C30	0.94968 (19)	0.4431 (3)	1.14756 (13)	0.0583 (11)	
H30A	0.9004	0.4574	1.1402	0.070*	
H30B	0.9598	0.3316	1.1542	0.070*	

C31	0.9746 (2)	0.4891 (5)	1.26544 (19)	0.0558 (10)
C32	1.0143 (3)	0.5695 (6)	1.3220 (2)	0.0749 (13)
H32	1.0474	0.6418	1.3181	0.090*
C33	1.0046 (3)	0.5419 (7)	1.3836 (2)	0.0929 (17)
H33	1.0306	0.5969	1.4212	0.111*
C34	0.9565 (3)	0.4332 (9)	1.3897 (3)	0.108 (2)
H34	0.9492	0.4153	1.4312	0.130*
C35	0.9196 (3)	0.3522 (8)	1.3342 (3)	0.108 (2)
H35	0.8879	0.2765	1.3386	0.129*
C36	0.9279 (2)	0.3792 (7)	1.2721 (2)	0.0743 (14)
H36	0.9019	0.3230	1.2348	0.089*

Atomic displacement parameters ( $\text{\AA}^2$ )

	$U^{11}$	$U^{22}$	$U^{33}$	$U^{12}$	$U^{13}$	$U^{23}$
Pr1	0.04654 (13)	0.03356 (12)	0.03391 (11)	-0.00161 (9)	0.00420 (8)	0.00057 (9)
O1	0.0588 (16)	0.0479 (16)	0.0398 (14)	0.0067 (13)	0.0132 (12)	0.0022 (12)
O2	0.0634 (16)	0.0494 (16)	0.0428 (14)	0.0069 (14)	0.0167 (12)	0.0097 (12)
O3	0.0709 (19)	0.085 (2)	0.0591 (18)	0.0162 (17)	0.0304 (15)	0.0209 (16)
O4	0.0480 (14)	0.0350 (15)	0.0484 (14)	0.0008 (12)	0.0015 (11)	-0.0027 (11)
O5	0.0480 (15)	0.0524 (16)	0.0462 (15)	-0.0032 (12)	0.0003 (12)	0.0071 (12)
O6	0.0616 (19)	0.0474 (18)	0.073 (2)	-0.0128 (14)	0.0006 (15)	-0.0080 (15)
O7	0.0718 (17)	0.0341 (14)	0.0424 (14)	-0.0063 (13)	0.0142 (12)	-0.0043 (11)
O8	0.087 (2)	0.0515 (18)	0.0383 (14)	-0.0250 (16)	0.0177 (13)	-0.0031 (12)
O9	0.091 (2)	0.0617 (19)	0.0416 (15)	-0.0270 (16)	0.0210 (14)	-0.0058 (13)
N1	0.0508 (19)	0.0435 (19)	0.0498 (19)	0.0053 (15)	0.0029 (15)	-0.0074 (15)
N2	0.065 (2)	0.0375 (18)	0.0373 (17)	0.0016 (16)	-0.0006 (14)	0.0005 (14)
C1	0.059 (3)	0.075 (3)	0.058 (3)	0.008 (2)	0.015 (2)	-0.002 (2)
C2	0.064 (3)	0.111 (5)	0.084 (4)	0.003 (3)	0.032 (3)	-0.011 (3)
C3	0.049 (3)	0.109 (5)	0.128 (5)	-0.002 (3)	0.022 (3)	-0.018 (4)
C4	0.053 (3)	0.088 (4)	0.076 (4)	0.007 (3)	-0.004 (2)	-0.016 (3)
C5	0.052 (2)	0.039 (2)	0.061 (3)	0.0057 (18)	0.0014 (19)	-0.0115 (18)
C6	0.060 (3)	0.131 (6)	0.114 (5)	0.018 (3)	-0.017 (3)	-0.027 (5)
C7	0.080 (4)	0.113 (5)	0.087 (4)	0.039 (4)	-0.034 (3)	-0.019 (4)
C8	0.077 (3)	0.061 (3)	0.056 (3)	0.018 (2)	-0.017 (2)	-0.011 (2)
C9	0.060 (2)	0.035 (2)	0.048 (2)	0.0049 (19)	-0.0111 (18)	-0.0053 (17)
C10	0.117 (5)	0.071 (4)	0.047 (3)	0.018 (3)	-0.020 (3)	0.000 (2)
C11	0.122 (5)	0.070 (4)	0.040 (2)	-0.001 (3)	0.003 (3)	0.009 (2)
C12	0.084 (3)	0.051 (3)	0.048 (2)	-0.003 (2)	0.004 (2)	0.0067 (19)
C13	0.058 (2)	0.035 (2)	0.038 (2)	-0.0060 (18)	0.0116 (17)	-0.0025 (15)
C14	0.066 (3)	0.056 (3)	0.049 (2)	0.006 (2)	0.0199 (19)	0.0123 (19)
C15	0.075 (3)	0.067 (3)	0.061 (3)	-0.006 (2)	0.034 (2)	0.002 (2)
C16	0.079 (3)	0.098 (4)	0.075 (3)	0.001 (3)	0.038 (3)	0.002 (3)
C17	0.092 (4)	0.100 (5)	0.113 (5)	-0.002 (4)	0.060 (4)	-0.006 (4)
C18	0.135 (5)	0.087 (4)	0.124 (5)	-0.015 (4)	0.092 (5)	-0.007 (4)
C19	0.159 (6)	0.101 (5)	0.092 (4)	0.008 (5)	0.077 (4)	0.026 (4)
C20	0.103 (4)	0.088 (4)	0.080 (3)	0.010 (3)	0.053 (3)	0.024 (3)
C21	0.051 (2)	0.050 (2)	0.0325 (18)	-0.0054 (18)	0.0066 (16)	-0.0032 (16)

## supplementary materials

C22	0.062 (3)	0.045 (2)	0.058 (3)	0.002 (2)	0.008 (2)	-0.0060 (19)
C23A	0.090 (12)	0.047 (10)	0.126 (11)	-0.009 (9)	0.071 (9)	0.027 (9)
C24A	0.116 (10)	0.055 (9)	0.086 (9)	-0.011 (7)	0.073 (8)	0.000 (7)
C25A	0.118 (11)	0.079 (10)	0.127 (11)	0.017 (8)	0.069 (9)	0.021 (9)
C26A	0.109 (12)	0.111 (11)	0.140 (12)	0.047 (9)	0.082 (10)	0.052 (9)
C27A	0.103 (11)	0.138 (13)	0.168 (14)	0.041 (10)	0.087 (9)	0.065 (11)
C28A	0.102 (12)	0.113 (12)	0.167 (13)	0.032 (10)	0.074 (10)	0.046 (10)
C23B	0.083 (8)	0.033 (6)	0.107 (8)	0.002 (5)	0.016 (6)	-0.005 (6)
C24B	0.145 (9)	0.086 (8)	0.109 (9)	-0.021 (7)	0.044 (7)	0.012 (7)
C25B	0.144 (10)	0.120 (9)	0.117 (9)	0.000 (8)	0.070 (8)	0.028 (7)
C26B	0.145 (10)	0.128 (10)	0.140 (10)	0.041 (9)	0.063 (9)	0.023 (8)
C27B	0.123 (8)	0.086 (7)	0.141 (9)	0.033 (6)	0.047 (7)	0.016 (7)
C28B	0.079 (6)	0.056 (6)	0.133 (8)	0.014 (5)	0.046 (5)	0.012 (5)
C29	0.061 (2)	0.033 (2)	0.040 (2)	-0.0035 (18)	0.0133 (17)	0.0007 (16)
C30	0.077 (3)	0.055 (3)	0.044 (2)	-0.020 (2)	0.0193 (19)	-0.0057 (19)
C31	0.072 (3)	0.056 (3)	0.038 (2)	-0.003 (2)	0.0146 (19)	0.0016 (18)
C32	0.092 (3)	0.077 (3)	0.054 (3)	-0.019 (3)	0.017 (2)	-0.009 (2)
C33	0.122 (5)	0.108 (5)	0.042 (3)	-0.021 (4)	0.014 (3)	-0.009 (3)
C34	0.133 (5)	0.146 (6)	0.055 (3)	-0.031 (5)	0.043 (3)	0.009 (4)
C35	0.124 (5)	0.141 (6)	0.066 (4)	-0.059 (4)	0.041 (3)	-0.003 (4)
C36	0.081 (3)	0.091 (4)	0.053 (3)	-0.033 (3)	0.023 (2)	-0.003 (2)

### Geometric parameters ( $\text{\AA}$ , $^\circ$ )

Pr1—O1	2.489 (2)	C15—C20	1.370 (6)
Pr1—O2 <sup>i</sup>	2.535 (2)	C16—C17	1.387 (7)
Pr1—O4	2.565 (2)	C16—H16	0.9300
Pr1—O5	2.817 (3)	C17—C18	1.352 (8)
Pr1—O5 <sup>i</sup>	2.449 (2)	C17—H17	0.9300
Pr1—O7	2.409 (3)	C18—C19	1.345 (8)
Pr1—O8 <sup>ii</sup>	2.545 (3)	C18—H18	0.9300
Pr1—N1	2.753 (3)	C19—C20	1.415 (7)
Pr1—N2	2.720 (3)	C19—H19	0.9300
O1—C13	1.255 (4)	C20—H20	0.9300
O2—C13	1.252 (4)	C21—C22	1.500 (5)
O2—Pr1 <sup>i</sup>	2.535 (2)	C22—H22A	0.9700
O3—C15	1.372 (5)	C22—H22B	0.9700
O3—C14	1.429 (5)	C23A—C24B	1.1792
O4—C21	1.235 (4)	C23A—C24A	1.3900
O5—C21	1.282 (4)	C23A—C28A	1.3900
O5—Pr1 <sup>i</sup>	2.449 (2)	C23A—C28B	1.5294
O6—C23B	1.309 (5)	C24A—C25A	1.3900
O6—C22	1.412 (5)	C24A—C23B	1.6025
O6—C23A	1.433 (5)	C24A—C25B	1.6693
O7—C29	1.263 (3)	C25A—C25B	0.7471
O8—C29	1.233 (3)	C25A—C24B	1.2955
O8—Pr1 <sup>ii</sup>	2.545 (3)	C25A—C26A	1.3900
O9—C31	1.364 (5)	C26A—C25B	0.7502

O9—C30	1.427 (4)	C26A—C26B	0.9047
N1—C1	1.319 (5)	C26A—C27A	1.3900
N1—C5	1.372 (5)	C27A—C26B	0.5756
N2—C12	1.323 (5)	C27A—C27B	0.8310
N2—C9	1.355 (5)	C27A—C28A	1.3900
C1—C2	1.401 (6)	C27A—C25B	1.6721
C1—H1	0.9300	C28A—C28B	0.5549
C2—C3	1.381 (8)	C28A—C27B	1.1036
C2—H2	0.9300	C28A—C23B	1.3252
C3—C4	1.373 (8)	C23B—C24B	1.3900
C3—H3	0.9300	C23B—C28B	1.3900
C4—C5	1.418 (6)	C24B—C25B	1.3900
C4—C6	1.452 (8)	C25B—C26B	1.3900
C5—C9	1.424 (6)	C26B—C27B	1.3900
C6—C7	1.335 (9)	C27B—C28B	1.3900
C6—H6	0.9300	C29—C30	1.5078
C7—C8	1.426 (8)	C30—H30A	0.9700
C7—H7	0.9300	C30—H30B	0.9700
C8—C10	1.377 (7)	C31—C36	1.364 (6)
C8—C9	1.440 (5)	C31—C32	1.391 (6)
C10—C11	1.340 (7)	C32—C33	1.372 (6)
C10—H10	0.9300	C32—H32	0.9300
C11—C12	1.423 (6)	C33—C34	1.374 (8)
C11—H11	0.9300	C33—H33	0.9300
C12—H12	0.9300	C34—C35	1.361 (8)
C13—C14	1.509 (5)	C34—H34	0.9300
C14—H14A	0.9700	C35—C36	1.371 (6)
C14—H14B	0.9700	C35—H35	0.9300
C15—C16	1.363 (6)	C36—H36	0.9300
O1—Pr1—O4	73.62 (8)	C21—C22—H22A	108.8
O1—Pr1—O5	65.11 (8)	O6—C22—H22B	108.8
O1—Pr1—O7	145.88 (9)	C21—C22—H22B	108.8
O4—Pr1—O5	48.17 (8)	H22A—C22—H22B	107.7
O4—Pr1—O7	138.84 (9)	C24B—C23A—C28A	104.0
O5—Pr1—O7	139.57 (8)	C24A—C23A—C28A	120.0
O1—Pr1—N1	127.55 (9)	C24B—C23A—O6	137.2 (2)
O4—Pr1—N1	63.48 (9)	C24A—C23A—O6	121.4 (2)
O5—Pr1—N1	102.34 (9)	C28A—C23A—O6	118.6 (2)
O7—Pr1—N1	77.09 (9)	C24B—C23A—C28B	125.0
O1—Pr1—N2	81.11 (9)	C24A—C23A—C28B	141.0
O4—Pr1—N2	74.08 (9)	O6—C23A—C28B	97.4 (2)
O5—Pr1—N2	118.22 (8)	C23A—C24A—C25A	120.0
O7—Pr1—N2	96.74 (9)	C25A—C24A—C23B	121.0
N1—Pr1—N2	59.78 (10)	C23A—C24A—C25B	93.7
O7—Pr1—O5 <sup>i</sup>	87.92 (9)	C23B—C24A—C25B	94.7
O5 <sup>i</sup> —Pr1—O1	77.99 (9)	C25B—C25A—C24B	81.0
O7—Pr1—O2 <sup>i</sup>	75.61 (8)	C24B—C25A—C26A	102.7
O5 <sup>i</sup> —Pr1—O2 <sup>i</sup>	74.63 (8)	C25B—C25A—C24A	98.2

## supplementary materials

---

O1—Pr1—O2 <sup>i</sup>	128.25 (9)	C26A—C25A—C24A	120.0
O7—Pr1—O8 <sup>ii</sup>	77.23 (9)	C25B—C26A—C26B	113.9
O5 <sup>i</sup> —Pr1—O8 <sup>ii</sup>	78.03 (9)	C26B—C26A—C25A	135.7
O1—Pr1—O8 <sup>ii</sup>	69.56 (9)	C25B—C26A—C27A	98.3
O2 <sup>i</sup> —Pr1—O8 <sup>ii</sup>	141.78 (8)	C25A—C26A—C27A	120.0
O5 <sup>i</sup> —Pr1—O4	120.85 (9)	C26B—C27A—C27B	162.1
O2 <sup>i</sup> —Pr1—O4	84.07 (8)	C26B—C27A—C28A	145.1
O8 <sup>ii</sup> —Pr1—O4	133.42 (8)	C27B—C27A—C28A	52.6
O5 <sup>i</sup> —Pr1—N2	148.71 (10)	C27B—C27A—C26A	172.5
O2 <sup>i</sup> —Pr1—N2	136.51 (10)	C28A—C27A—C26A	120.0
O8 <sup>ii</sup> —Pr1—N2	72.96 (10)	C26B—C27A—C25B	51.6
O5 <sup>i</sup> —Pr1—N1	150.33 (9)	C27B—C27A—C25B	146.2
O2 <sup>i</sup> —Pr1—N1	76.88 (9)	C28A—C27A—C25B	93.7
O8 <sup>ii</sup> —Pr1—N1	122.05 (10)	C26B—C27A—C28B	154.6
O5 <sup>i</sup> —Pr1—O5	72.90 (10)	C26A—C27A—C28B	129.4
O2 <sup>i</sup> —Pr1—O5	65.21 (8)	C25B—C27A—C28B	103.1
O8 <sup>ii</sup> —Pr1—O5	129.91 (9)	C28B—C28A—C27B	109.4
C13—O1—Pr1	130.3 (2)	C28B—C28A—C23B	84.9
C13—O2—Pr1 <sup>i</sup>	137.7 (2)	C27B—C28A—C23B	164.8
C15—O3—C14	117.6 (3)	C28B—C28A—C27A	145.7
C21—O4—Pr1	101.0 (2)	C23B—C28A—C27A	128.5
C21—O5—Pr1 <sup>i</sup>	163.1 (3)	C28B—C28A—C23A	93.7
C21—O5—Pr1	87.9 (2)	C27B—C28A—C23A	156.7
Pr1 <sup>i</sup> —O5—Pr1	107.10 (9)	C27A—C28A—C23A	120.0
C23B—O6—C22	119.6 (3)	C28B—C28A—C26B	155.7
C22—O6—C23A	112.6 (3)	C27B—C28A—C26B	46.7
C29—O7—Pr1	151.9 (2)	C23B—C28A—C26B	118.6
C29—O8—Pr1 <sup>ii</sup>	150.0 (2)	C23A—C28A—C26B	110.0
C31—O9—C30	117.4 (3)	C28B—C28A—C24B	127.6
C1—N1—C5	118.0 (4)	C27B—C28A—C24B	122.4
C1—N1—Pr1	120.6 (3)	C27A—C28A—C24B	85.7
C5—N1—Pr1	119.9 (3)	C26B—C28A—C24B	75.7
C12—N2—C9	118.5 (3)	O6—C23B—C28A	134.3 (3)
C12—N2—Pr1	119.6 (3)	O6—C23B—C24B	128.8 (2)
C9—N2—Pr1	121.6 (2)	C28A—C23B—C24B	96.6
N1—C1—C2	123.4 (4)	O6—C23B—C28B	111.1 (3)
N1—C1—H1	118.3	C24B—C23B—C28B	120.0
C2—C1—H1	118.3	O6—C23B—C24A	115.1 (2)
C3—C2—C1	118.4 (5)	C28A—C23B—C24A	110.3
C3—C2—H2	120.8	C28B—C23B—C24A	133.7
C1—C2—H2	120.8	C23A—C24B—C25A	153.2
C4—C3—C2	120.3 (5)	C25A—C24B—C23B	152.0
C4—C3—H3	119.9	C23A—C24B—C25B	121.2
C2—C3—H3	119.9	C23B—C24B—C25B	120.0
C3—C4—C5	118.0 (5)	C25A—C24B—C28A	111.6

C3—C4—C6	123.0 (6)	C25B—C24B—C28A	79.6
C5—C4—C6	119.1 (6)	C25A—C25B—C26A	136.4
N1—C5—C4	121.9 (4)	C25A—C25B—C24B	67.0
N1—C5—C9	118.2 (4)	C26A—C25B—C24B	156.1
C4—C5—C9	120.0 (4)	C25A—C25B—C26B	172.8
C7—C6—C4	120.7 (6)	C24B—C25B—C26B	120.0
C7—C6—H6	119.7	C25A—C25B—C24A	55.5
C4—C6—H6	119.7	C26A—C25B—C24A	167.7
C6—C7—C8	122.1 (5)	C26B—C25B—C24A	131.5
C6—C7—H7	118.9	C25A—C25B—C27A	167.8
C8—C7—H7	118.9	C26A—C25B—C27A	55.3
C10—C8—C7	124.2 (5)	C24B—C25B—C27A	101.1
C10—C8—C9	116.9 (5)	C24A—C25B—C27A	112.6
C7—C8—C9	118.9 (5)	C27A—C26B—C26A	138.7
N2—C9—C5	118.9 (3)	C26A—C26B—C27B	149.3
N2—C9—C8	121.9 (4)	C27A—C26B—C25B	109.4
C5—C9—C8	119.1 (4)	C27B—C26B—C25B	120.0
C11—C10—C8	121.1 (4)	C26A—C26B—C28A	114.2
C11—C10—H10	119.5	C25B—C26B—C28A	84.7
C8—C10—H10	119.5	C27A—C27B—C28A	90.7
C10—C11—C12	119.4 (5)	C28A—C27B—C26B	98.0
C10—C11—H11	120.3	C27A—C27B—C28B	112.7
C12—C11—H11	120.3	C26B—C27B—C28B	120.0
N2—C12—C11	122.0 (5)	C28A—C28B—C27B	48.5
N2—C12—H12	119.0	C28A—C28B—C23B	71.7
C11—C12—H12	119.0	C27B—C28B—C23B	120.0
O2—C13—O1	128.2 (3)	C28A—C28B—C23A	65.1
O2—C13—C14	119.1 (4)	C27B—C28B—C23A	113.5
O1—C13—C14	112.7 (3)	C23B—C28B—C27A	95.9
O3—C14—C13	110.9 (3)	C23A—C28B—C27A	89.4
O3—C14—H14A	109.5	O8—C29—O7	126.7 (3)
C13—C14—H14A	109.5	O8—C29—C30	120.06 (18)
O3—C14—H14B	109.5	O7—C29—C30	113.28 (15)
C13—C14—H14B	109.5	O9—C30—C29	111.20 (18)
H14A—C14—H14B	108.0	O9—C30—H30A	109.4
C16—C15—C20	120.9 (4)	C29—C30—H30A	109.4
C16—C15—O3	114.8 (4)	O9—C30—H30B	109.4
C20—C15—O3	124.3 (4)	C29—C30—H30B	109.4
C15—C16—C17	119.9 (5)	H30A—C30—H30B	108.0
C15—C16—H16	120.0	C36—C31—O9	124.9 (4)
C17—C16—H16	120.0	C36—C31—C32	119.6 (4)
C18—C17—C16	120.0 (6)	O9—C31—C32	115.5 (4)
C18—C17—H17	120.0	C33—C32—C31	120.0 (5)
C16—C17—H17	120.0	C33—C32—H32	120.0
C19—C18—C17	120.5 (5)	C31—C32—H32	120.0
C19—C18—H18	119.7	C32—C33—C34	120.1 (5)
C17—C18—H18	119.7	C32—C33—H33	119.9
C18—C19—C20	120.9 (6)	C34—C33—H33	119.9
C18—C19—H19	119.5	C35—C34—C33	119.1 (5)

## supplementary materials

---

C20—C19—H19	119.5	C35—C34—H34	120.5
C15—C20—C19	117.7 (5)	C33—C34—H34	120.5
C15—C20—H20	121.2	C34—C35—C36	121.7 (5)
C19—C20—H20	121.2	C34—C35—H35	119.1
O4—C21—O5	122.8 (3)	C36—C35—H35	119.1
O4—C21—C22	120.2 (3)	C31—C36—C35	119.4 (5)
O5—C21—C22	117.0 (4)	C31—C36—H36	120.3
O6—C22—C21	113.9 (3)	C35—C36—H36	120.3
O6—C22—H22A	108.8		

Symmetry codes: (i)  $-x+2, -y, -z+2$ ; (ii)  $-x+2, -y+1, -z+2$ .

### Hydrogen-bond geometry ( $\text{\AA}, \text{\circ}$ )

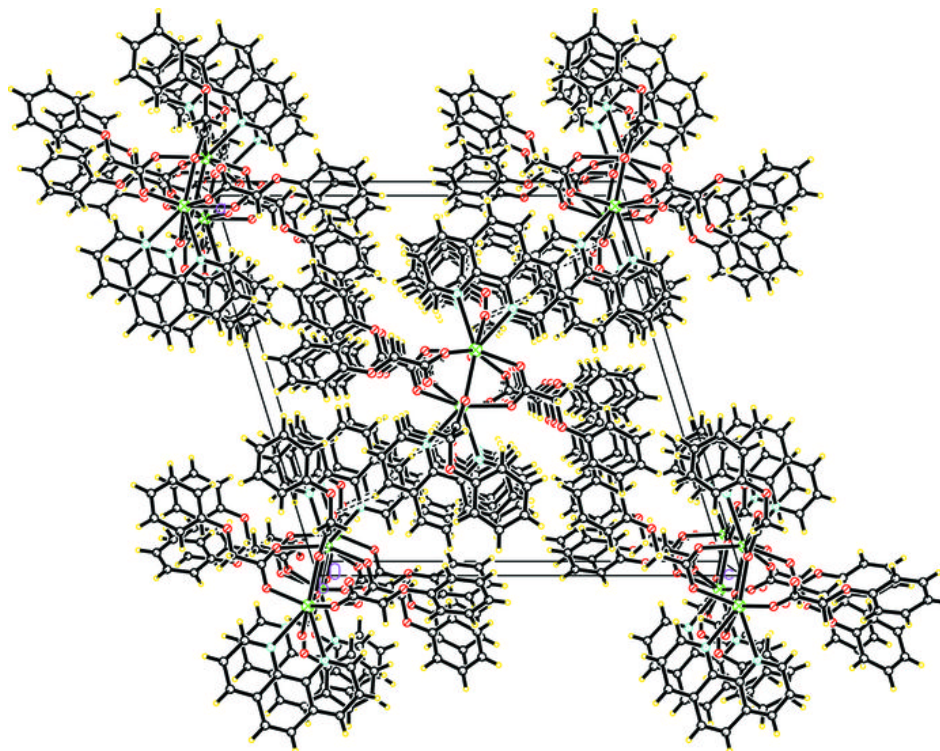
$D-H\cdots A$	$D-H$	$H\cdots A$	$D\cdots A$	$D-H\cdots A$
C1—H1 $\cdots$ O2 <sup>i</sup>	0.93	2.46	3.147 (5)	130
C10—H10 $\cdots$ O4 <sup>iii</sup>	0.93	2.34	3.211 (5)	156
C12—H12 $\cdots$ O8 <sup>ii</sup>	0.93	2.47	3.063 (5)	122
C22—H22B $\cdots$ O7 <sup>iv</sup>	0.97	2.41	3.353 (5)	166

Symmetry codes: (i)  $-x+2, -y, -z+2$ ; (iii)  $-x+3/2, y+1/2, -z+3/2$ ; (ii)  $-x+2, -y+1, -z+2$ ; (iv)  $x, y-1, z$ .

Article retracted



Fig. 2



Article re