Light Induced Ammonia Synthesis by Crystalline Polyoxometalates-based Hybrid Frameworks Coupled with Sv-1T MoS$_2$ Cocatalyst

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1. Experimental Section

1.1 Materials preparation

Preparation of Mo-aniline precursor. \((\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O} \) (2.48 g, 2 mmol) was dissolved in deionized water (30 mL), stirred for 10 min, and then aniline (3.0 g, 0.03 mol) was slowly added into the homogeneously dispersed solution. The pH value of the solution was adjusted in the range of 3.8 to 4.5 by 1 M dilute hydrochloric acid. The system was reacted in a water bath or oil bath at 50 °C for 2 h, and the white thick product was obtained after the reaction. The product was filtered and washed repeatedly with deionized water and ethanol absolute. The obtained white solid material was taken out and dried in an oven at 50 °C.

Preparation of Sv-1T \(\text{MoS}_2\). The Sv-1T \(\text{MoS}_2\) nanoflowers were prepared by the hydrothermal method: Mo-aniline precursor (50 mg, 0.75 mmol) was added to deionized water (75 mL), and then stirred for 30 min to completely dissolve it. Thiourea (89 mg, 11.7 mmol) was added into the above solution. After stirring for 30 min, the reactants were transferred to a 100 mL Teflon lined autoclave, and the reaction was continued at 180 °C for 16 h. The black solution was centrifuged at a speed of 8000 rpm to collect the products after the hydrothermal process. The products washed in 0.1 M HCl completely, and then washed by absolute ethanol and DI water for several times, and dried in a vacuum drying oven at 80 °C.

Preparation of PMoV-based hybrid materials (\(\text{PMo}_8\text{V}_6\)-Ni, \(\text{PMo}_{11}\text{V}_{3.5}\)-Ni, \(\text{PMo}_8\text{V}_6\)). \(\text{PMo}_8\text{V}_6\)-Ni: A mixture of \(\text{H}_5\text{PMo}_{10}\text{V}_2\text{O}_{40} \cdot 34.5\text{H}_2\text{O} \) (300 mg, 0.12 mmol), \(\text{NH}_4\text{VO}_3\) (300 mg, 2.56 mmol), \(\text{NiCl}_2 \cdot 6\text{H}_2\text{O} \) (500 mg, 2.10 mmol), 1,2,4-triazole (200 mg, 2.8 mmol), acetic acid (1 mL) and \(\text{H}_2\text{O} \) (15 mL) was vigorously stirred for 30 min and the pH value was then adjusted to about 4 using 6.0 mol·L\(^{-1}\) HCl, transferred to a Teflon-lined stainless-steel reactor, and kept at 180 °C for 72 h. After slow cooling to room temperature, we collected the black cuboid blocks. Yield: 76% (based on Mo). Anal. Calcd for \(\text{C}_{24}\text{H}_{75}\text{Ni}_7\text{Mo}_8\text{N}_{36}\text{O}_{67}\text{PV}_6\) (Mr = 3455.3): C, 8.3; N, 14.5; P, 0.89; Mo, 22.2; V, 8.8; Ni, 11.8. Found: C, 9.1; N, 13.8; P, 0.93; Mo, 23.8; V, 7.9; Ni, 12.9.

\(\text{PMo}_{11}\text{V}_{3.5}\)-Ni. \(\text{PMo}_{11}\text{V}_{3.5}\)-Ni was synthesized following a procedure similar to that for PMoV-Ni except that the pH value of the reaction solution was changed to approximately 3.5. Dark blue block crystals were crystallized (73% yield, based on Mo). Anal. Calcd for \(\text{C}_{24}\text{H}_{64}\text{Mo}_{11}\text{Ni}_{18}\text{O}_{62}\text{PV}_{3.5}\) (Mr = 3524.7): C, 8.2; N, 14.3; P, 0.87; Mo, 29.9; V, 5.0; Ni, 11.6. Found: C, 8.8; N, 15.4; P, 0.86; Mo, 31.6; V, 4.4; Ni, 12.5.
PMo$_2$V$_6$ was synthesized following a procedure similar to that for PMoV-Ni, except that 1,2,4-triazole (200 mg, 2.8 mmol) was substituted by 4,4'-bipyridine (200 mg, 1.28 mmol). The reaction time and temperature were adjusted to 170 °C for 120 h. After slow cooling temperature, we collected the black cuboid blocks. Yield: 63% (based on Mo). Calcd for C$_{20}$H$_{39}$Mo$_8$N$_4$O$_{48}$PV$_6$ (Mr = 2207.68): C, 10.8; N, 2.5; P, 1.4; Mo, 34.8; V, 13.8. Found: C, 10.1; N, 2.8; P, 0.9; Mo, 35.4; V, 14.3.

Preparation of 5v-1T MoS$_2$/PMoV-based hybrid composite-materials. Mo-aniline precursor (50 mg) was added to deionized water (75 mL), and then stirred for 30 min to completely dissolve it. Thiourea (89 mg, 11.7 mmol) and PMoV-based hybrid materials (100 mg) were weighed successively and added into the above solution. After stirring for 30 min, the reactants were transferred to a 100 mL Teflon lined autoclave, and the reaction was continued at 180 °C for 16 h. The black solution was centrifuged at a speed of 8000 rpm to collect the products. The products washed in 0.1 M HCl completely, and then washed by absolute ethanol and DI water for several times, and dried in a vacuum drying oven at 80 °C.

1.2 Materials characterization

The PXRD measurements were conducted in a Bruker AXS D8 diffractometer. The IR spectra were tested on a Bruker AXS TENSOR-27 FTIR spectrometer. The XPS was obtained by an ESCALAB 250Xi photoelectron spectrometer. The TEM and EDX element mapping were handled on a transmission electron microscope. The SEM was recorded with an FEI Quanta 200F microscope. Uv-vis NIR diffuse reflectance spectra were recorded in the spectral region of 200-800 nm with a Shimadzu SolidSpec 3700 spectrophotometer. $^1$H-NMR spectroscopy was conducted in a Bruker Avance NEO 500. The PL and the TRPL decay spectra were tested on a Hitachi F-4500 fluorescence spectrophotometer. Single-crystal construction was tested and their diffraction data was gathered on a Bruker Apex II diffractometer equipped with a charge-coupled detector using graphite-monochromated Mo Kα radiation ($\lambda = 0.71073$ nm). The summary of the crystal data and structural parameters of PMoV-based hybrid materials are showed in Table S3. The selected bond lengths and angles for PMoV-based hybrid materials are presented in Table S4-S6. The Cambridge Crystallographic Data Centre reference number are 2096404, 2120049, and 2120050. for PMoV-based hybrid materials.
1.3 Photocatalytic nitrogen fixation reaction test.

The photocatalytic nitrogen reduction reaction was executed in the feeding gas at room temperature and pressure. The feeding gas (high-purity Ar (99.999%), $^{14}$N$_2$ (99.999%, Wuhan Newradar Special Gas Co., Ltd.) and $^{15}$N$_2$ (99 atom%, Wuhan Newradar Special Gas Co., Ltd.)) were carefully purified through a Cu impurity trap to remove possible contaminants (for example: NO$_x$ and other nitrogen compounds). 50 mg of the sample was dispersed in a quartz reactor containing 100 ml DI water and 10 ml ethanol. At the beginning of the experiment, the suspension was stirred violently in dark and bubbled high purity nitrogen for 30 min. Subsequently, 5 ml of liquid sample was extracted from the reaction vessel and the suspension was irradiated with a 300 MW Xe lamp. Within 1 h of the reaction, the reaction solution was extracted every 60 min and the photocatalyst was removed by centrifugation. Using Nessler’s reagent detects the concentration of NH$_4^+$. At the same time, the O$_2$ produced in the reaction process was tested using gas chromatography (GC-7920).

1.4 Photocurrent tests.

The I-T curves were tested by a three-electrode system in the CHI601D electrochemical workstation under the Xe lamp as the light source. The composite nano-catalysts were added to the conductive glass ITO, standard Ag/AgCl electrode, and Pt electrode. The photocurrent curves were carried out in 0.5 mol L$^{-1}$ Na$_2$SO$_4$ electrolyte from 0 to 260 s at a rate of 0.1 A s$^{-1}$ in air and N$_2$, respectively. N$_2$ was injected in Na$_2$SO$_4$ electrolyte solution for 30 minutes to eliminate air, and the N$_2$ was blown at the time of the measurement process. The electrochemical impedance and cyclic voltammetry tests in 0.5 mol L$^{-1}$ Na$_2$SO$_4$ electrolyte solution were measured at room temperature in the CHI601D electrochemical workstation.

1.5 Isotope Labeling Experiments:

The produced NH$_3$ was detected by the $^1$H-NMR spectroscopy. $^{15}$N$_2$(99 atom%, provided by Wuhan Newradar Special Gas Co., Ltd.) was used to further verify the nitrogen source of NH$_3$. All the gases were purified by the Cu impurity trap. After $^{15}$N$_2$ photocatalytic nitrogen fixation, 5 mL of the mixture was withdrawn and the sample was separated by centrifugation (6000 r/min, 4 min). The pH value of reaction solution was adjusted to 2 by hydrochloric acid. Finally, 0.6 mL of DMSO-d6 (99.8 atom%) was added into the solution followed by measurement of 1H-NMR spectroscopy (Bruker Avance NEO 500).
1.6 Apparent quantum efficiency calculation.

The apparent quantum efficiency (AQE) was tested by dividing the number of electrons consumed during the photochemical reaction by the number of photons were absorbed by the photocatalyst.

\[
AQY = \frac{N_{\text{reacted}}}{N_{\text{incident}}} \times 100\% = \frac{3 \times \text{Number of generated NH}_3}{\text{Number of incident photons}} \times 100\% \quad (1)
\]

1.7 The solar-to-ammonia (STA) efficiency calculation.

The STA efficiency can be calculated by the equation:

\[
\text{STA efficiency} (\%) = \frac{\Delta G_A \times n_A}{W \times A \times t \times 100\%} \quad (2)
\]

In the above equation, the \(\Delta G_A\) value for \(\text{NH}_3\) generation is 339 kJ mol\(^{-1}\). The overall illumination intensity of the AM1.5G light source was (W) 100 mW cm\(^{-2}\) and the illumination area (A) was 28.26 cm\(^2\) and t is the reaction time(s). Based on the calculation equation, we calculated the STA efficiency of the material.
**Fig. S1** The ORTEP view of the basic units with 50% thermal ellipsoids of (a) PMo$_{11}$V$_{3.5}$-Ni (b) PMo$_8$V$_6$-Ni.

**Fig. S2** The coordination environment of the V cap and Ni clusters in PMo$_8$V$_6$-Ni

**Fig. S3** The ORTEP view of the basic units with 50% thermal ellipsoids of PMo$_8$V$_6$. 
Fig. S4 The HRTEM images of Sv-1T MoS$_2$.

Fig. S5 The EDX Element mapping of Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni.

Fig. S6 The FTIR spectroscopies of (a) Sv-1T MoS$_2$, PMo$_{11}$V$_{3.5}$-Ni hybrid materials, and its composite-materials, and (b) Sv-1T MoS$_2$, PMo$_9$V$_6$ hybrid materials, and its composite-materials.
**Fig. S7** The XRD patterns of (a) Sv-1T MoS$_2$, PMo$_{11}$V$_{3.5}$-Ni hybrid materials, and its composite-materials, and (b) Sv-1T MoS$_2$, PMo$_8$V$_6$ hybrid materials, and its composite-materials.

**Fig. S8** The TGA curves of (a) PMo$_8$V$_6$, (b) PMo$_{11}$V$_{3.5}$-Ni, and (c) PMo$_{11}$V$_{3.5}$-Ni.

**Fig. S9** The UV-vis diffuse reflectance spectra of PMoV-based hybrid materials.
**Fig. S10** The photograph of (a) PMo8V6, (b) PMo11V3.5-Ni, and (c) PMo8V6-Ni under an optical microscope.

**Fig. S11** High-resolution XPS spectra of (a) Mo 3d, (b) V 2P, and (c) Ni 2p for Sv-1T MoS2/PMo11V3.5-Ni hybrid composite-materials.

**Fig. S12** High-resolution XPS spectra of (a) Mo 3d and (b) V 2P for Sv-1T MoS2/PMo8V6 hybrid composite-materials.
**Fig. S13** (a) The standard curve line of NH$_4^+$ ions concentration detected by Nessler’s reagent and (b) NH$_3$ production at different amount of Sv-1T MoS$_2$ in Sv-1T MoS$_2$/PMo$_8$V$_6$ hybrid composite-materials.

**Fig. S14** (a) NH$_3$ production at different times of (a) Sv-1T MoS$_2$ and 1T MoS$_2$. (b) Sv-1T MoS$_2$, PMo$_8$V$_6$, and Sv-1T MoS$_2$/PMo$_8$V$_6$. (c) Sv-1T MoS$_2$, PMo$_{11}$V$_{3.5}$-Ni, and Sv-1T MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni and (d) Sv-1T MoS$_2$, PMo$_8$V$_6$-Ni, and Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni.
**Fig. S15** Photocatalytic nitrogen fixation with Sv-1T MoS$_2$/PMo$_8$V$_6$, Sv-1T MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni, and Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni. in aprotic solvents (CH$_3$CN and DMF).

**Fig. S16** O$_2$ production at different times of Sv-1T MoS$_2$ and Sv-1T MoS$_2$/PMoV-based hybrid composite-materials under light irradiation.
Fig. S17 NH$_3$ yield rate of Sv-IT MoS$_2$/PMo$_8$V$_6$-Ni versus ethanol content

Fig. S18 The cyclic stability of (a) Sv-IT MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni and (b) Sv-IT MoS$_2$/PMo$_8$V$_6$ after five test cycles.
Fig. S19 (a~c) The FTIR spectra, (d~f) the XRD pattern and (g~i) the SEM of Sv-1T MoS$_2$/PMoV-based hybrid composite-materials before and after reaction photocatalysis, respectively.

Fig. S20 (a~f) The XPS pattern of Sv-1T MoS$_2$/PMoV-based hybrid composite-materials before and after reaction photocatalysis, respectively.
Fig. S21 Comparison of PL spectroscopy: (a) PMo$_{11}$V$_{3.5}$-Ni and Sv-1T MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni and (b) PMo$_8$V$_6$ and Sv-1T MoS$_2$/PMo$_8$V$_6$.

Fig. S22 Comparison of TRPL decay spectra: (a) PMo$_{11}$V$_{3.5}$-Ni and Sv-1T MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni and (b) PMo$_8$V$_6$ and Sv-1T MoS$_2$/PMo$_8$V$_6$.

Fig. S23 (a) The time-resolved photocurrent curve of PMo$_8$V$_6$-Ni and Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni in N$_2$. The time-resolved photocurrent curve in air and N$_2$ atmosphere (b) Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni, (c) Sv-1T MoS$_2$/PMo$_{11}$V$_{3.5}$-Ni and (d) Sv-1T MoS$_2$/PMo$_8$V$_6$. 
**Fig. S24** Mott–Schottky plots of Sv-1T MoS$_2$ and PMoV-based hybrid composite-materials.

**Fig. S25** The plot of $F$ against energy $E$ for (a) PMo$_8$V$_6$, (b) PMo$_{11}$V$_{3.5}$-Ni. (c) PMo$_8$V$_6$-Ni. The black line is the tangent of the curve and the intersection value is the band gap.

**Fig. S26** XPS valence band spectra of SV-1T MoS$_2$. 
### Table S1. Comparison of apparent quantum efficiencies (AQE) results with previously reported data.

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Wavelength (nm)</th>
<th>AQE (%)</th>
<th>Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mo-W$<em>{18}$O$</em>{49}$</td>
<td>400</td>
<td>0.33</td>
<td>S1</td>
</tr>
<tr>
<td>Ov-Bi$_2$WO$_6$</td>
<td>420</td>
<td>0.04</td>
<td>S2</td>
</tr>
<tr>
<td>SmOCl nanosheets</td>
<td>420</td>
<td>0.32</td>
<td>S3</td>
</tr>
<tr>
<td>Ov-BiOBr</td>
<td>420</td>
<td>0.23</td>
<td>S4</td>
</tr>
<tr>
<td>Fe-TiO$_2$/Au</td>
<td>600</td>
<td>0.39</td>
<td>S5</td>
</tr>
<tr>
<td>CdS:MoFe protein</td>
<td>405</td>
<td>0.33</td>
<td>S6</td>
</tr>
<tr>
<td>Cu-doped TiO$_2$</td>
<td>420</td>
<td>0.23</td>
<td>S7</td>
</tr>
<tr>
<td>Ti$_3$C$_2$/TiO$_2$</td>
<td>740</td>
<td>0.07</td>
<td>S8</td>
</tr>
<tr>
<td>ZnCr-LDH</td>
<td>550</td>
<td>0.11</td>
<td>S9</td>
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<td>Mo$_{1-x}$W$_x$S$_2$ nanosheets</td>
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<td>0.09</td>
<td>S10</td>
</tr>
<tr>
<td>Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni</td>
<td>550</td>
<td>0.36</td>
<td>this work</td>
</tr>
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</table>

Ov, oxygen vacancies; Sv, sulfur vacancies.

### Table S2. Comparison of the solar-to-ammonia (STA) efficiency results with previously reported data.

<table>
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<th>Catalyst</th>
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<th>Ref.</th>
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<td>Sv-1T MoS$_2$/PMo$_8$V$_6$-Ni</td>
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<tr>
<td>2017</td>
<td>Au/(BiO)$_2$CO$_3$</td>
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<tr>
<td>2017</td>
<td>Defect TiO$_2$</td>
<td>0.02%</td>
<td>S12</td>
</tr>
<tr>
<td>2018</td>
<td>Mo-W$<em>{18}$O$</em>{49}$</td>
<td>0.028%</td>
<td>S1</td>
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<tr>
<td>2020</td>
<td>ZnAl-LDH</td>
<td>0.014%</td>
<td>S13</td>
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<tr>
<td>2020</td>
<td>Au/HCNS-Nv</td>
<td>0.032%</td>
<td>S14</td>
</tr>
<tr>
<td>2021</td>
<td>r-Ti$_3$C$_2$/Au</td>
<td>0.013%</td>
<td>S15</td>
</tr>
<tr>
<td>2021</td>
<td>B-Vo-HNbO$_3$</td>
<td>0.02%</td>
<td>S16</td>
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Table S3: Crystal data and structure refinement of PMo<sub>8</sub>V<sub>6</sub>, PMo<sub>11</sub>V<sub>3.5</sub>-Ni, PMo<sub>8</sub>V<sub>6</sub>-Ni

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<th></th>
<th>PMo&lt;sub&gt;8&lt;/sub&gt;V&lt;sub&gt;6&lt;/sub&gt;</th>
<th>PMo&lt;sub&gt;11&lt;/sub&gt;V&lt;sub&gt;3.5&lt;/sub&gt;-Ni</th>
<th>PMo&lt;sub&gt;8&lt;/sub&gt;V&lt;sub&gt;6&lt;/sub&gt;-Ni</th>
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<td>formula</td>
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<td>C&lt;sub&gt;24&lt;/sub&gt;H&lt;sub&gt;64&lt;/sub&gt;Mo&lt;sub&gt;11&lt;/sub&gt;N&lt;sub&gt;36&lt;/sub&gt;Ni&lt;sub&gt;7&lt;/sub&gt;O&lt;sub&gt;62&lt;/sub&gt;PM&lt;sub&gt;v&lt;/sub&gt;.&lt;sub&gt;3.5&lt;/sub&gt;</td>
<td>C&lt;sub&gt;22&lt;/sub&gt;H&lt;sub&gt;32&lt;/sub&gt;Mo&lt;sub&gt;8&lt;/sub&gt;N&lt;sub&gt;36&lt;/sub&gt;Ni&lt;sub&gt;7&lt;/sub&gt;O&lt;sub&gt;62&lt;/sub&gt;PM&lt;sub&gt;v&lt;/sub&gt;.&lt;sub&gt;6&lt;/sub&gt;</td>
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<td>Mr</td>
<td>2207.68</td>
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<td>Crystal system</td>
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<td>17.5443(19)</td>
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<td>c, Å</td>
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<td>90</td>
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<td>V (Å&lt;sup&gt;3&lt;/sup&gt;)</td>
<td>3039.1(14)</td>
<td>9317.5(7)</td>
<td>9332(3)</td>
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<td>D&lt;sub&gt;c&lt;/sub&gt; Kg m&lt;sup&gt;-3&lt;/sup&gt;</td>
<td>2.413</td>
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<td>F(000), e</td>
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<td>Rsigma = 0.0189]</td>
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<td>R&lt;sub&gt;f&lt;/sub&gt;,</td>
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<td>0.0617 /0.1677</td>
<td>0.0417 /0.1069</td>
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<tr>
<td>GoF (F&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>1.052</td>
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<td>0.0628 /0.1687</td>
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Table S4 Selected bond distances (nm) and angles (°) for PMo<sub>8</sub>V<sub>6</sub>

<table>
<thead>
<tr>
<th>Bond</th>
<th>Dist.</th>
<th>Bond</th>
<th>Dist.</th>
<th>Bond</th>
<th>Dist.</th>
</tr>
</thead>
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<tr>
<td>Mo1-O4</td>
<td>1.645(15)</td>
<td>Mo2-O3</td>
<td>1.671(16)</td>
<td>Mo3-O1</td>
<td>1.630(8)</td>
</tr>
<tr>
<td>Mo1-O9</td>
<td>2.512(16)</td>
<td>Mo2-O5&lt;sup&gt;5&lt;/sup&gt;</td>
<td>1.920(8)</td>
<td>Mo3-O5</td>
<td>1.970(9)</td>
</tr>
<tr>
<td>Mo1-O9&lt;sup&gt;1&lt;/sup&gt;</td>
<td>2.512(16)</td>
<td>Mo2-O5</td>
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Symmetry transformations used to generate equivalent atoms: \( ^{1}-X,-Y,+Z; \) \( ^{2}+X,+Y,+Z; \) \( ^{3}-X,+Y,+Z; \) \( ^{4}+X,+Y,-Z; \) \( ^{5}+Y,-X,-Z; \) \( ^{6}-Y,+X,-Z; \) \( ^{7}+X,-Y,-Z; \) \( ^{8}+X,+Y,1-Z; \) \( ^{9}+X,+Y,2-Z; \) \( ^{10}+Y,1-X,2-Z; \) \( ^{11}+Y,1-X,1-Z; \) \( ^{12}+Y,1-X,1-Z; \) \( ^{13}+Y,1-X,1-Z; \) \( ^{14}+Y,1-X,1-Z; \) \( ^{15}+Y,1-X,1-Z; \) \( ^{16}+Y,1-X,1-Z; \) \( ^{17}+Y,1-X,1-Z; \) \( ^{18}+Y,1-X,1-Z; \) \( ^{19}+Y,1-X,1-Z; \) \( ^{20}+Y,1-X,1-Z; \) \( ^{21}+Y,1-X,1-Z; \) \( ^{22}+Y,1-X,1-Z; \) \( ^{23}+Y,1-X,1-Z; \) \( ^{24}+Y,1-X,1-Z; \) \( ^{25}+Y,1-X,1-Z; \) \( ^{26}+Y,1-X,1-Z; \) \( ^{27}+Y,1-X,1-Z; \) \( ^{28}+Y,1-X,1-Z; \) \( ^{29}+Y,1-X,1-Z; \) \( ^{30}+Y,1-X,1-Z; \) \( ^{31}+Y,1-X,1-Z; \) \( ^{32}+Y,1-X,1-Z; \) \( ^{33}+Y,1-X,1-Z; \)
Table S6 Selected bond distances (nm) and angles (°) for compound PMo$_5$V$_2$-Ni

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<td>O3$^1$-V2-O3$^3$</td>
</tr>
<tr>
<td>O3-V2-O3$^2$</td>
<td>135.5(4)</td>
<td>O3$^1$-V2-O3$^3$</td>
</tr>
</tbody>
</table>


References