Supporting Information

From 1D to 3D Lanthanide Coordination Polymers Constructed with Pyridine-3,5-dicarboxylic Acid: Synthesis, Crystal Structures, and Catalytic Properties

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Symmetry transformations used to generate equivalent atoms: #1 x-1,y,z, #2 -x-1,-y+1,-z+2, #3 -x,y+1,-z+1, #4 x,y-1,z, #5 -x,-y+1,-z+2, #6 x,y+1,z, #7 x+1,y,z.
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Symmetry transformations used to generate equivalent atoms: 
- #1 -x+1,-y+1,-z <br>- #2 -x+1,-y+1,-z+1 <br>- #3 x,y+1,z <br>- #4 -x,-y+1,-z <br>- #5 x-1,y+1,z <br>- #6 -x,-y+1,-z <br>- #7 x,y-1,z <br>- #8 x+1,y-1,z

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Symmetry transformations used to generate equivalent atoms: 
- #1 -x+1/2,y+3/2,-z <br>- #2 x,y-1,z <br>- #3 x,y,z+1/2 <br>- #4 x,y+1,z <br>- #5 -x+1,-y+1,-z
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Symmetry transformations used to generate equivalent atoms: #1 -x,y+1/2,-z-1/2, #2 x-1,y,z , #3 -x,y-1/2,-z-1/2, #4 x+1,y,z

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Symmetry transformations used to generate equivalent atoms: #1 -x,y+1/2,-z-1/2, #2 x-1,y,z, #3 -x,y-1/2,-z-1/2, #4 x+1,y,z
### Compound 6

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Symmetry transformations used to generate equivalent atoms: #1 x,-y+1,z-1/2, #2 x,-y+1,z+1/2, #5 -x+2,-y+1,-z.

### Compound 7

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</table>

Symmetry transformations used to generate equivalent atoms: #1 x,-y+1,z-1/2, #2 x,-y+1,z+1/2.
Fig. S1 Experimental and simulated PXRD patterns for 1 to 7.
Fig. S2 TGA curves of compounds 3, 5, 7 and activated 3.

Fig. S3 N$_2$ adsorption/desorption isotherms of 3 (Sm-PDC) and 5 (Ho-PDC).
**Fig. S4** Filtration experiment for 3 (Sm-PDC). The full square (■) represents the reaction with Sm-PDC as a catalyst. The open square (□) represents the reaction course after filtration of the catalyst at 2 hours.

**Fig. S5** Recycling experiments.
Fig. S6 Powder X-ray patterns for 3 (Sm-PDC) before and after catalytic studies.