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# Metal Organic Framework Templated Synthesis of Ultrathin, Well-Aligned Metallic Nanowires

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(May 2014)

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- Synthesis, assembly, characterization, dynamics, measurement, theory, and simulation of
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  - nanomaterials and nanoassemblies
  - nanodevices
  - self-assembled structures
- Nanobiotechnology, nanomedicine, and nanobiophysics
- Single-molecule methods and measurements
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- Nanofabrication and novel lithographic methods
- Methods and tools for nanoscience and nanotechnology
- Self-assembly and directed assembly

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In addition, invited perspectives, commentaries, and reviews written by leading researchers in the field and conversations with founders, thought leaders, and public officials provide distinctive views about the future of nanoscience and nanotechnology.

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A separate CIF file for each structure should be uploaded. *ACS Nano* requires authors to run the CheckCIF program for each crystallographic structure and to correct any syntax errors in the CIF files prior to submission.

Structure factors (except for proteins and nucleic acids) should not be submitted as Supporting Information. However, one printed table of structure factors should be retained in case it is requested by the Editor for review purposes only.

**Powder Diffraction Data.** The presentation of X-ray powder diffraction data for new materials or for materials previously uncharacterized by this technique is encouraged. Data from X-ray powder measurements should be accompanied by details of the experimental technique: source of X-rays, the radiation, its wavelength, filters or monochromators, camera diameter, the type of X-ray recording, and the technique for measuring intensities. In cases of unindexed listing of the data, the  $d$  spacings of all observed lines should be listed in sequence, together with their relative intensities. In cases where filtered radiation is used, every effort should be made to identify residual  $\beta$  lines. Where resolution into  $\alpha_1$ - $\alpha_2$  doublets occurs, the identification of the  $d$  spacing for each line as  $d\alpha_1$ ,  $d\alpha_2$  gives a measure of the quality of the diffraction pattern. When an indexing of the data is offered, the observed and calculated  $1/d^2$  values should be listed along with the observed relative intensities (it is superfluous to give  $d$  spacings in this instance). All calculated  $1/d^2$  values should be listed (exclusive of systematic absences), to the limit of the data quoted. If possible, the crystal system should be specified. Possible space groups may also be listed if the data warrant it. Relevant information about the specimen used should be included.

**Magnetic Measurements.** Fits of magnetic data [ $X(T)$ ,  $X^{-1}(T)$ ,  $XT(T)$ ,  $\mu(T)$ ,  $M(H)$ , *etc.*] to an analytical expression must include both the Hamiltonian from which the analytical expression is derived and the final analytical expression and fitting parameters. When the value of an exchange coupling constant,  $J$ , is given in the abstract, the form of the Hamiltonian must also be included. The expressions may be included in the manuscript or, if long and complex, as Supporting Information; if the latter method is used, it should be noted in the “Supporting Information Available” paragraph at the end of the manuscript. In addition, how the sample was measured (in a gelatin capsule, Teflon capsule, *etc.*) and the diamagnetic correction for the sample holder, as well as the diamagnetic correction for the material, must be provided and the manner in which it was calculated (Pascal’s constants) or measured must be stated.

**Computations.** When computational results are an essential part of a manuscript, sufficient detail must be given, either within the paper or in the Supporting Information, to enable readers to reproduce the calculations. This includes data such as force field parameters and equations defining the model (or references to where such material is available in the open literature). Authors who report the results of electronic structure calculations are requested to provide as Supporting Information the geometries (either as Cartesian coordinates or Z matrices) of all the stationary points whose relative energies are given in the manuscript. The absolute energies in hartrees that are computed at these geometries should not be given in the manuscript but should be included in the Supporting Information. Where applicable, the number of imaginary frequencies should be reported to identify stable structures and transition states.

Large datasets for which an approved database has not yet been established must be housed as online Supporting Information at *ACS Nano*.

## Supporting Information

Material that is not needed for reading the paper but which should be available to document experiments or calculations for future researchers should be put into the Supporting Information. This material may include tables, illustrations, derivations, experimental procedures, analytical and spectral characterization data, spectra, modeling coordinates and programs, and crystallographic information files. The Supporting Information may also include additional material or discussion that is primarily of interest to specialized readers.

The Supporting Information format of this journal can accommodate and make readily available almost any type of supplementary figures or data (*e.g.*, reproductions of spectra, experimental procedures, tabulated data, or expanded discussion of peripheral findings). Text and tabular material should be double spaced; graphics should be saved at a resolution that allows clear viewing over the Web. The page size should be (U.S. Letter) 8.5 in. × 11 in. (22 cm × 28 cm), and the readable material should be aligned parallel with the 8.5 in. (22 cm) dimension wherever possible.

All pages should be numbered consecutively starting with page S1. Pages of CIF and plain text documents should not be numbered.

Include a paragraph at the end of the manuscript indicating the nature of the material and the means by which an interested reader may obtain copies directly. Use the following format:

***Supporting Information Available:*** Description of the material. This material is available free of charge *via* the Internet at <http://pubs.acs.org>.

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***Submission.*** Supporting Information must be submitted at the same time as the manuscript. A list of acceptable electronic file types for Supporting Information is given on the online manuscript submission site (<http://paragonplus.acs.org>). All Supporting Information files of the same type should be prepared as a single file (rather than submitting a series of files containing individual images or structures). For example, all Supporting Information available as PDF files should be contained in one PDF file. Whenever possible, all text and graphics in the Supporting Information should be consolidated into a single word-processing file. Do not upload figures and tables that are to be published in the article into the Supporting Information file.

***Access to Supporting Information.*** Supporting Information is available free of charge from the ACS Nano home page (<http://pubs.acs.org/journal/ancac3>).

## Web-Enhanced Objects

The Web editions of the ACS journals allow authors to use multimedia attachments such as animations and movies. These objects should complement a reader's understanding of the research being reported. The types of objects suitable for this form of publication should be viewable with Java or with commonly available plug-ins or helper applications. With the appropriate plug-ins or helper applications, one can view and manipulate these objects within the HTML file itself or in a separate window. File size should be ≤5 MB. Complete



specifications for Web-Enhanced Objects are given on the online manuscript submission site (<http://paragonplus.acs.org>).

## Graphics Quality and Format

The quality of the graphics in *ACS Nano* depends on the quality of the artwork provided by the author. Figures cannot be modified or enhanced by the journal production staff.

- The preferred submission procedure is to embed graphic files in a Word document. It may help to print the manuscript on a laser printer to ensure all artwork is clear and legible.
- Acceptable file formats are TIF, PDF, EPS (vector artwork), or CDX (ChemDraw file). If submitting individual graphic files in addition to them being embedded in a Word document, ensure the files are named based on graphic function (*i.e.*, Scheme 1, Figure 2, Chart 3), not the scientific name. Labeling of all figure parts should be present and the parts should be assembled into a single graphic.
- Figures containing photographic material should be in TIF format.
- Line-art figures should be submitted as EPS files.
- Images produced from continuous-tone graphics such as photographs should have high contrast.

Each graphic should be placed in the manuscript following the paragraph in which it is first mentioned in order to facilitate review and composition of page proofs. Individual graphic files, created by the author according to the following guidelines, will be used for production and should be uploaded to the ACS Paragon Plus Environment with the submitted manuscript:

- Minimum resolution requirements are as follow:

Black and white line art	1200 dpi
Grayscale art	600 dpi
Color art	300 dpi
- The RGB and resolution requirements are essential for producing high-quality graphics within the published paper. Graphics submitted in CMYK or at lower resolutions may be used, however, the colors may not be consistent and graphics of poor quality may not be able to be improved.
- Most graphic programs provide an option for changing the resolution when you are saving the image. Best practice is to save the graphic file at the final resolution and size using the program used to create the graphic.
- Place panel labels in the upper left-hand corner of the panel.
- Do not place a rule around the entire graphic.
- Place legends for graphs within the main body of the graph, whenever possible.
- Graphics representing similar types of data should be of a uniform size.
- Name graphics files Figure 1, Figure 2, *etc.*
- Indicate any graphics that require special handling.

**Size.** Graphics must be submitted at the actual size at which they should appear in the printed edition. Lettering must be no smaller than 6 points at final printed size. Arial font

should be used for lettering. Lines must be no thinner than 0.5 point at final printed size. Lettering and lines in all graphics should be of uniform density and the lines unbroken.

**Color.** The use of color is encouraged. Color graphics must be submitted in CMYK color scheme and at 300 dpi resolution. Macromolecular structures should not be placed on any background. Choose colors that will allow all features to be clearly visible on white paper.

**Chemical Structures.** Structures should be produced with the use of a drawing program such as ChemDraw. Authors using the current versions of ChemDraw will find the necessary parameters incorporated into this program (“ACS Document 1996”). Authors using older versions of ChemDraw should use the following settings:

(1) As drawing settings select:

chain angle	120°
bond spacing	18% of width
fixed length	14.4 pt (0.508 cm, 0.2 in.)
bold width	2.0 pt (0.071 cm, 0.0278 in.)
line width	0.6 pt (0.021 cm, 0.0084 in.)
margin width	1.6 pt (0.056 cm, 0.0222 in.)
hash spacing	2.5 pt (0.088 cm, 0.0347 in.)

(2) As text settings select:

font	Arial/Helvetica
size	10 pt

(3) Under the preferences choose:

units	points
tolerances	5 pixels

(4) Under page setup choose:

Paper	US Letter
Scale	100%

(5) Use the ChemDraw ruler or appropriate margin settings to create structure blocks, equations, and schemes with maximum widths of 8.25 cm (one-column format) or 17.8 cm (two-column format). If the foregoing drawing-setting lengths and widths are selected in centimeters rather than in points or inches, the ChemDraw ruler will be calibrated in cm.

(6) Save files as EPS or TIF images.

(7) Supply the native EPS or TIF image in addition to pasting the structure into the body of the manuscript.

For more information visit <http://pubs.acs.org/page/4authors/submission/index.html>.

**Graphical Table of Contents.** Each Article, Perspective, and Review must include a graphic for the Table of Contents. This graphic will also be used as the abstract graphic. This graphic should capture the readers’ attention and, in conjunction with the manuscript title,

give readers a visual impression of the essence of the paper without providing specific results. Labels, formulas, or numbers within the graphic must be legible at publication size. Tables or spectra are not acceptable. Color graphics are highly encouraged, with text kept to a minimum. At final printed size, all text should be  $\geq 6$  points. These graphics should be  $\leq 9$  cm in width ( $\leq 4.5$  cm for Perspectives and Nano Focus) and  $\leq 4$  cm in height, and must be  $\geq 300$  dpi in resolution at final printed size.

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