

NJC Electronic Supplementary Information for Nanoparticles of Molecule-based Conductors

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Characterization equipment

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- S1. TTF·TCNQ in presence of *n*-dodecylammoniumlactobionate, PEG 400 and Triton X.
- S2. TTF[Ni(dmit)₂]₂ in presence of *n*-dodecylammoniumlactobionate, PEG 400 and Triton X.
- S3. TTFCl_{0.77} in presence of CH₃(*n*-C₈H₁₇)₃NCl
- S4. TTFBr_{0.59} in presence of (*n*-C₈H₁₇)₄NBr
- S5. BEDT-TTFCl_{0.66} in presence of CH₃(*n*-C₈H₁₇)₃NCl.
- S6. (BEDT-TTF)₂Br in presence of (*n*-C₈H₁₇)₄NBr.

Characterization equipment

TEM and HRTEM observations have been performed at TEMSCAN (Université Paul Sabatier in Toulouse), on a Jeol JEM-1011 at 100 kV and on a Jeol-JEM-2100F at 200 kV for the high-resolution images.

Infrared spectra were taken at room temperature on a Perkin Elmer Spectrum GX spectrophotometer. Raman measurements were performed using a LabRAM-HR800 (Jobin Yvon) setup. The spectra are obtained at the temperature of liquid nitrogen using the 632.8 nm line of a He-Ne laser.

Powder X-ray diffraction pattern are collected on a XPert Pro (θ - θ mode) Panalytical diffractometer with λ (Cu K _{α 1}, K _{α 2}) = 1.54059, 1.54439 Å. The extraction of peak positions for indexing is performed with the fitting program, available in the PC software package Highscore+ supplied by Panalytical. Pattern indexing is carried out by means of the DICVOL program implemented in the Highscore+ package. The powder X-ray diffraction pattern is compared with the simulated pattern calculated using single crystal data from TTFTCQ01/IUCr A10935 file for TTF·TCNQ, CETPEW10 file for TTF[Ni(dmit)₂]₂, MTTFCL file for TTFCl_{0.77}, and ZZZBGJ file for TTFBr_{0.59}.

XPS measurements were performed with a PHOIBOS 150 hemispherical analyzer at the Institut de Tècniques Energètiques of the Politechnical University of Barcelona with a pass energy of 10 eV and using nonmonochromatized AlK α (1486.6 eV) radiation.

The room-temperature conductivity of the samples was measured on compressed pellets by two-probe contacts using a home-made equipment.

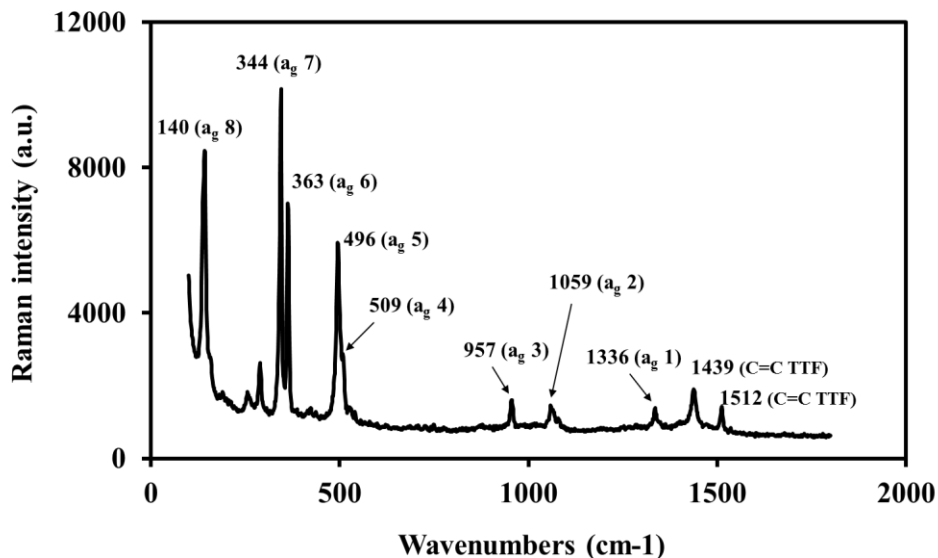
S1. TTF·TCNQ

IR and XRD spectra of the nanoparticles obtained in presence of *n*-dodecyl ammoniumlactobionate, PEG 400 and Triton X are identical to those of nanoparticles obtained in presence of ionic liquids.¹

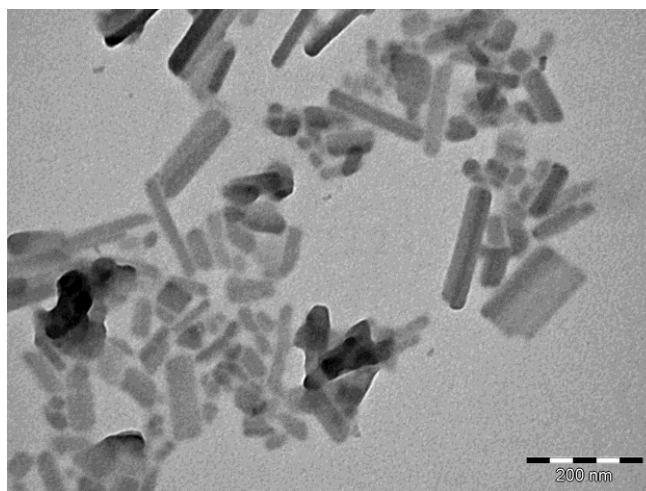
Raman is identical to that described in presence of ionic liquids.²

S2. TTF[Ni(dmit)₂]₂

IR and XRD spectra of the nanoparticles obtained in presence of *n*-dodecyl ammoniumlactobionate, PEG 400 and Triton X are identical to those of nanoparticles obtained in presence of ionic liquids.¹



Raman spectrum of TTF[Ni(dmit)₂]₂ nanoparticles obtained in all media.

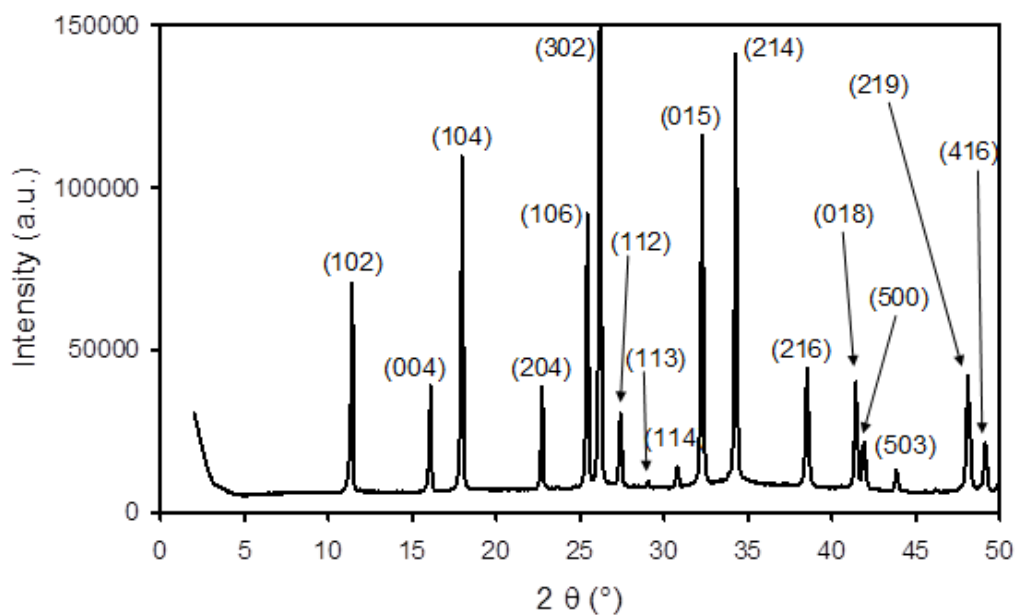
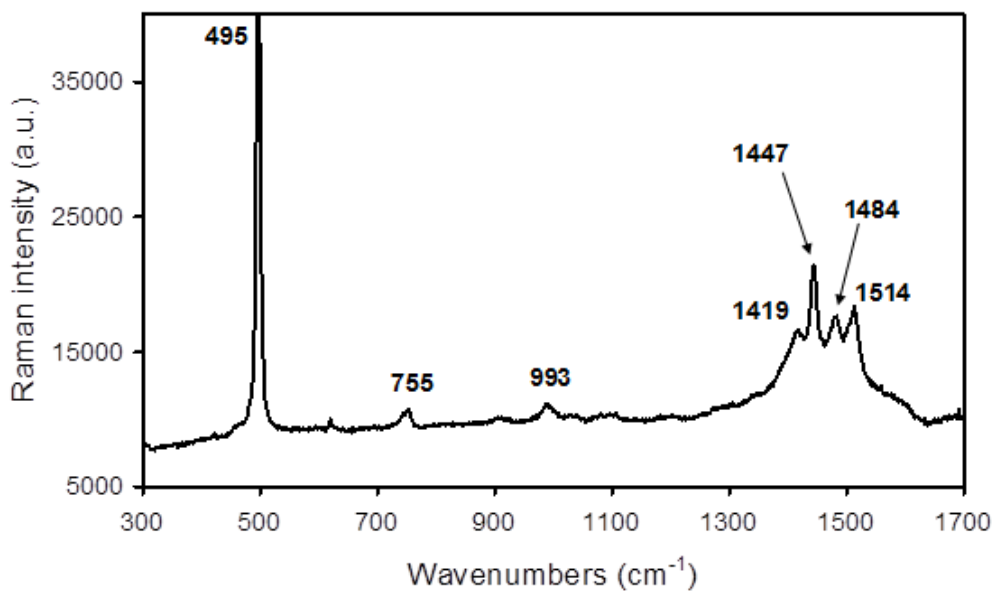


Nanosticks of TTF[Ni(dmit)₂]₂ obtained in presence of *n*-dodecylammoniumlactobionate

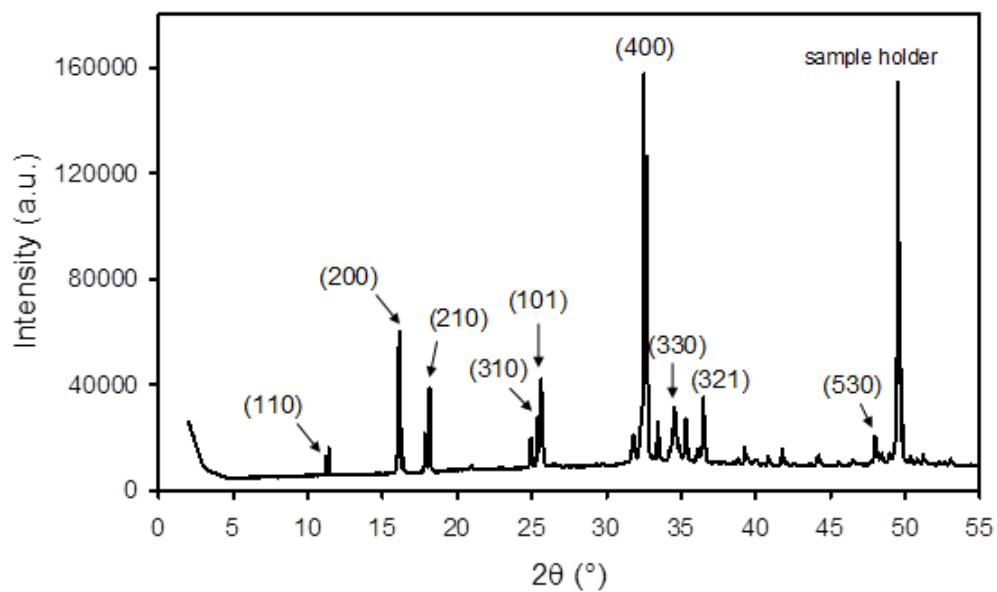
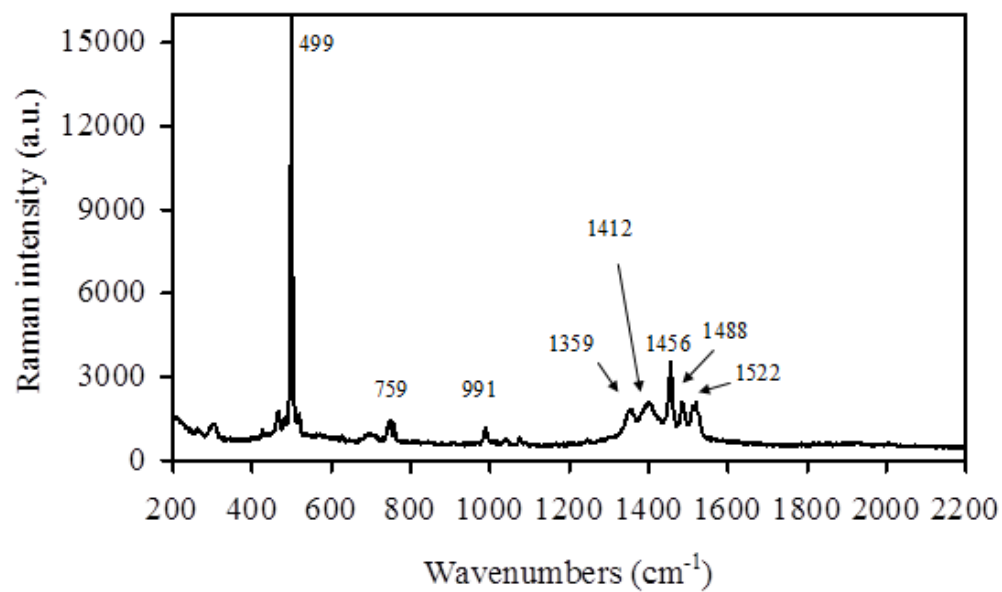
¹ D. de Caro, K. Jacob, M. Souque and L. Valade, in *Vibrational Spectroscopy*, ed. D. de Caro, INTECH, 2012, pp. 141-152.

² D. de Caro, K. Jacob, C. Faulmann, J.-P. Legros, F. Senocq, J. Fraxedas and L. Valade, *Synth. Met.*, 2010, 160, 1223-1227.

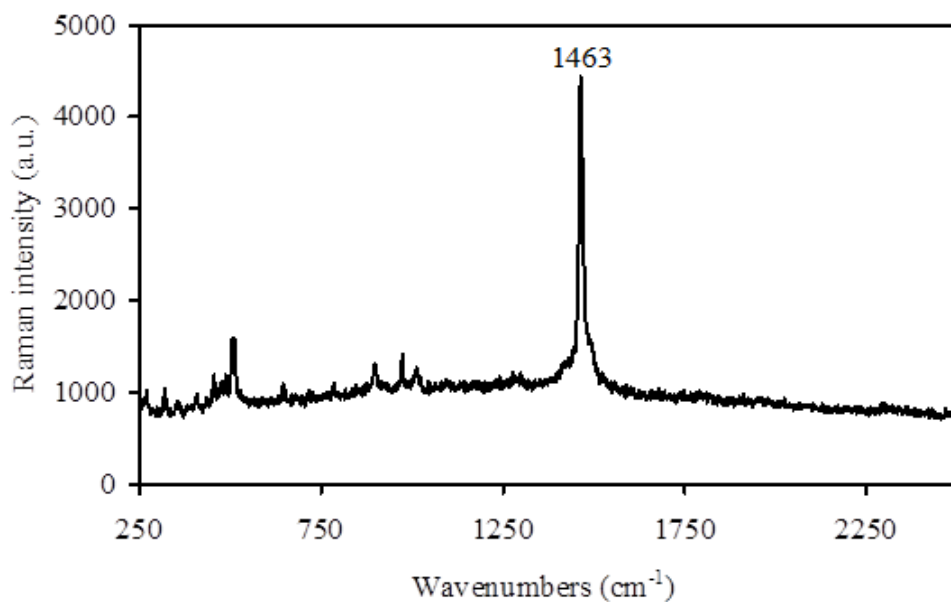
S3. $\text{TTfCl}_{0.77}$ in presence of $\text{CH}_3(n\text{-C}_8\text{H}_{17})_3\text{NCl}$: Raman and XRD



S4. TTFBr_{0.59} in presence of (*n*-C₈H₁₇)₄NBr: Raman and XRD.



S5. BEDT-TTFCl_{0.66} in presence of CH₃(*n*-C₈H₁₇)₃NCl: Raman.



S6. (BEDT-TTF)₂Br in presence of (*n*-C₈H₁₇)₄NBr: Raman.

