

SUPPORTING INFORMATION

Exfoliation of layered mixed zirconium 4-sulfophenylphosphonate phenylphosphonate

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Table S1. Formulas and thermogravimetric data for the prepared intercalates.

Intercalate	formula	Weight loss, % found/calc.	
		up to 200°C	total
ZrSPhP1.8-NH ₂ EtOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·1.8NH ₂ C ₂ H ₄ OH	0/0.00	59.2/59.66
ZrSPhP1.8-NH ₂ PrOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·1.8NH ₂ C ₃ H ₇ OH	0/0.00	61.5/61.16
ZrSPhP1.8-NH ₂ BuOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·1.8NH ₂ C ₄ H ₁₀ OH	0/0.00	62.0/62.54
ZrSPhP1.8-NH ₂ PeOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·1.8NH ₂ C ₅ H ₁₀ OH	0/0.00	64.1/63.83
ZrSPhP1.8-NH ₂ HexOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·1.8NH ₂ C ₆ H ₁₂ OH	0/0.00	64.5/65.03
ZrSPhP1.8-Et ₃ N	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.8} (C ₆ H ₄ PO ₃) _{0.2} ·0.9NC ₆ H ₁₅ ·H ₂ O	2.6/2.87	57.2/57.76
ZrSPhP1.3-NH ₂ EtOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.3} (C ₆ H ₄ PO ₃) _{0.7} ·1.3NH ₂ C ₂ H ₄ OH·H ₂ O	2.8/2.98	56.3/56.16
ZrSPhP1.3-NH ₂ PrOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.3} (C ₆ H ₄ PO ₃) _{0.7} ·1.3NH ₂ C ₃ H ₆ OH·H ₂ O	3.0/2.89	57.2/57.44
ZrSPhP1.3-NH ₂ BuOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.3} (C ₆ H ₄ PO ₃) _{0.7} ·1.3NH ₂ C ₄ H ₈ OH·H ₂ O	2.7/2.81	57.3/58.65
ZrSPhP1.3-NH ₂ PeOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.3} (C ₆ H ₄ PO ₃) _{0.7} ·1.3NH ₂ C ₅ H ₁₀ OH·H ₂ O	2.5/2.73	60.2/59.80
ZrSPhP1.3-NH ₂ HexOH	Zr(HO ₃ SC ₆ H ₄ PO ₃) _{1.3} (C ₆ H ₄ PO ₃) _{0.7} ·1.3NH ₂ C ₆ H ₁₂ OH·H ₂ O	2.6/2.66	61.0/60.88

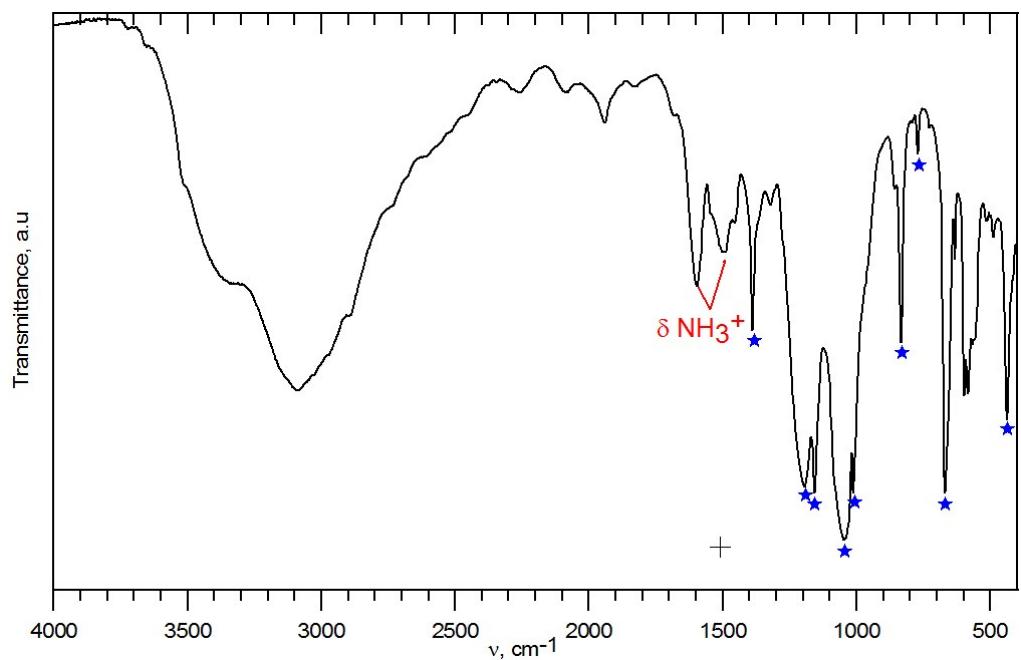


Figure S1: Infrared spectrum of amino ethanol intercalated **ZrSPhP1.8**.

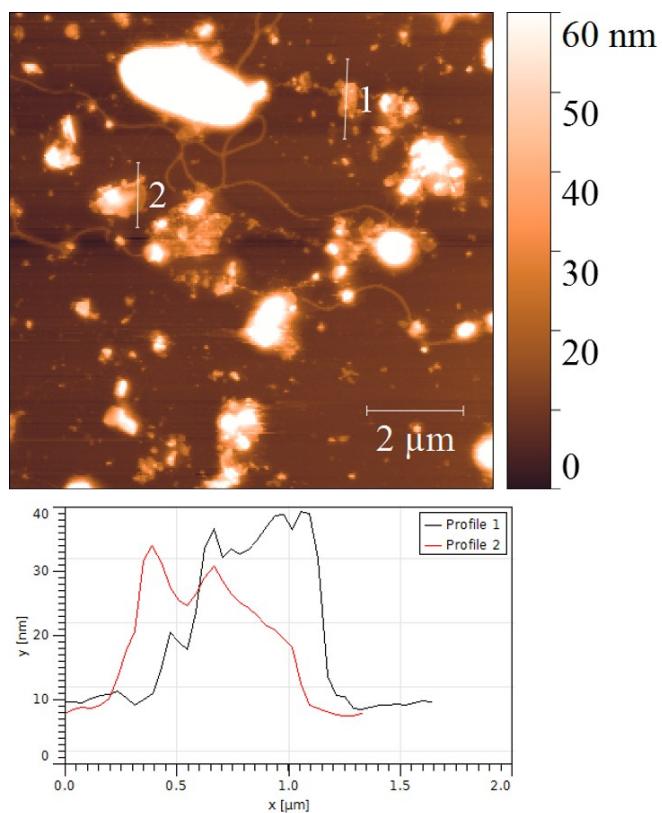


Figure S2: AFM scan and height profiles of **ZrSPhP1.8** exfoliated with amino ethanol using an ultrasound bath with frequency 37 kHz.

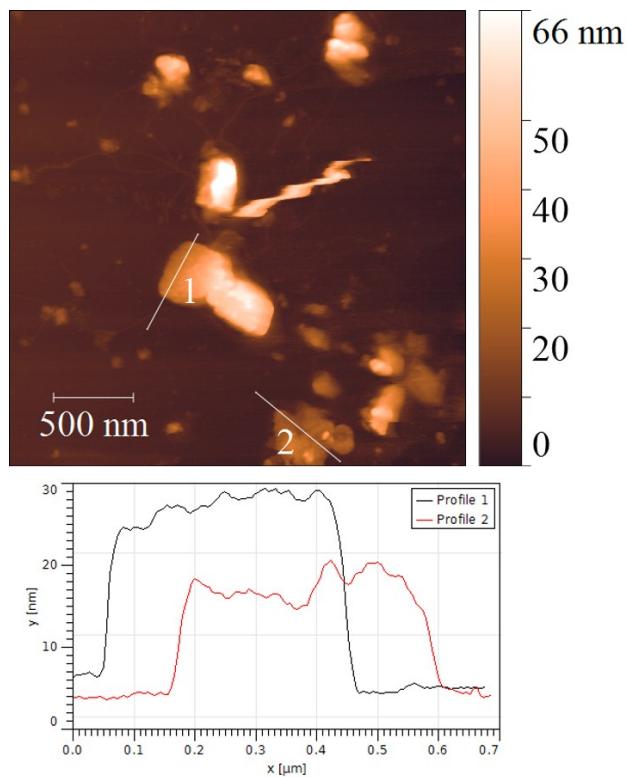


Figure S3. AFM scan and height profiles of **ZrSPhP1.8** exfoliated with amino ethanol using an ultrasound bath with frequency 37 kHz; detail.

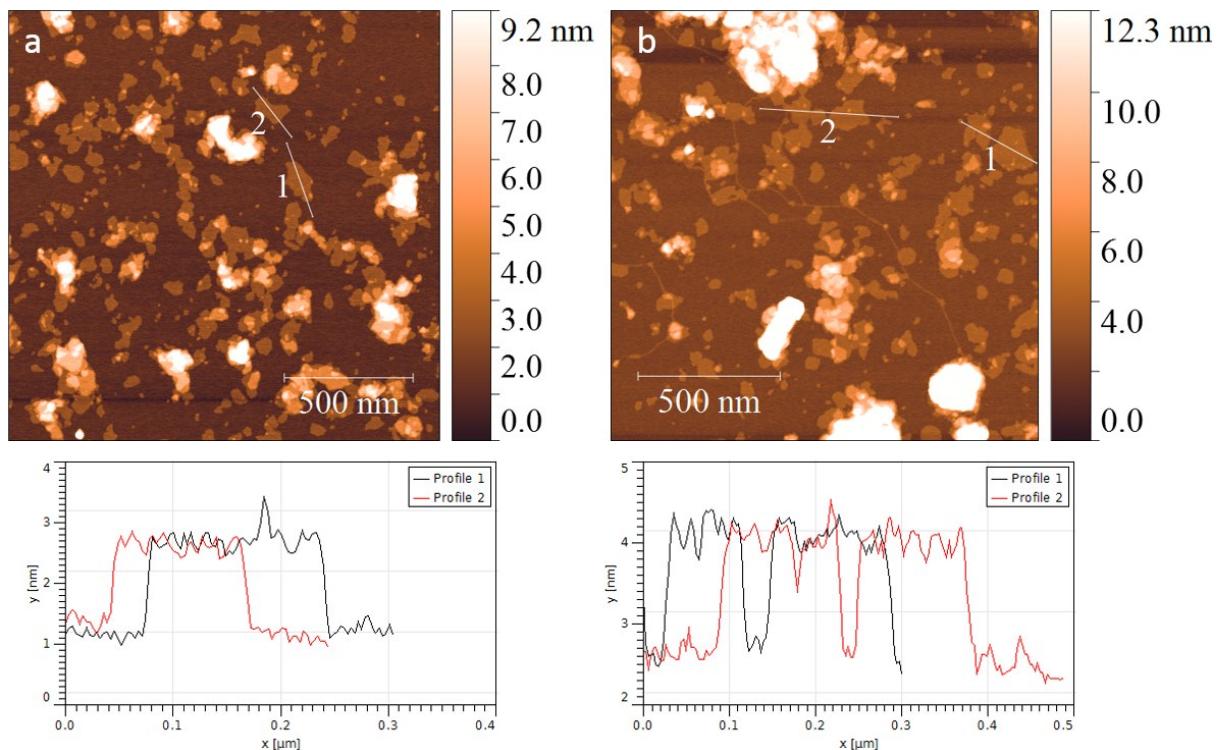


Figure S4. AFM topology scans and height profiles of **ZrSPhP1.3** exfoliated with amino ethanol (a) and amino hexanol (b).

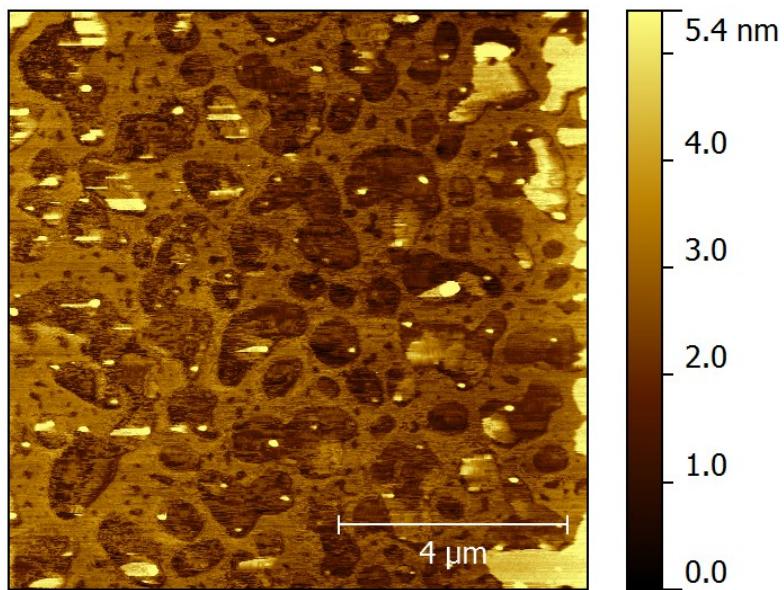


Figure S5. AFM topology scan of **ZrSPhP** treated with TBOAH. There are no detectable lamellas, just remains from collapsed foam.