Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Data for:

Assembling model tris(bipyridine)ruthenium(II) photosensitizers into ordered monolayers in the presence of the polyoxometallate $[Co_4(H_2O)_2(\alpha\text{-}PW_9O_{34})_2]^{10-}$

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Fig. S1. ^{1}H NMR spectrum (400 MHz, $CDCl_3$) of compound **1;** * = residual $CHCl_3$; ** = water.

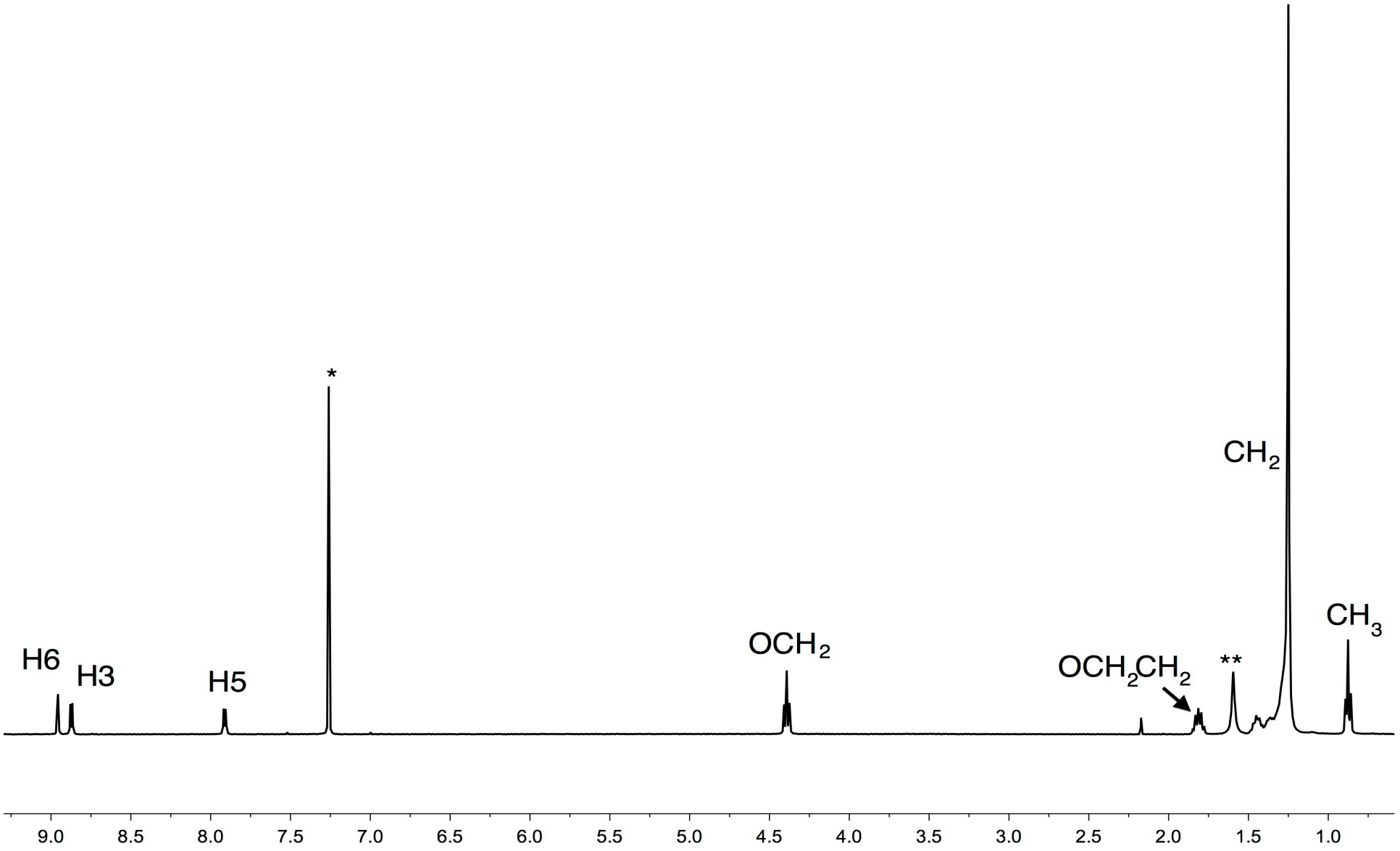
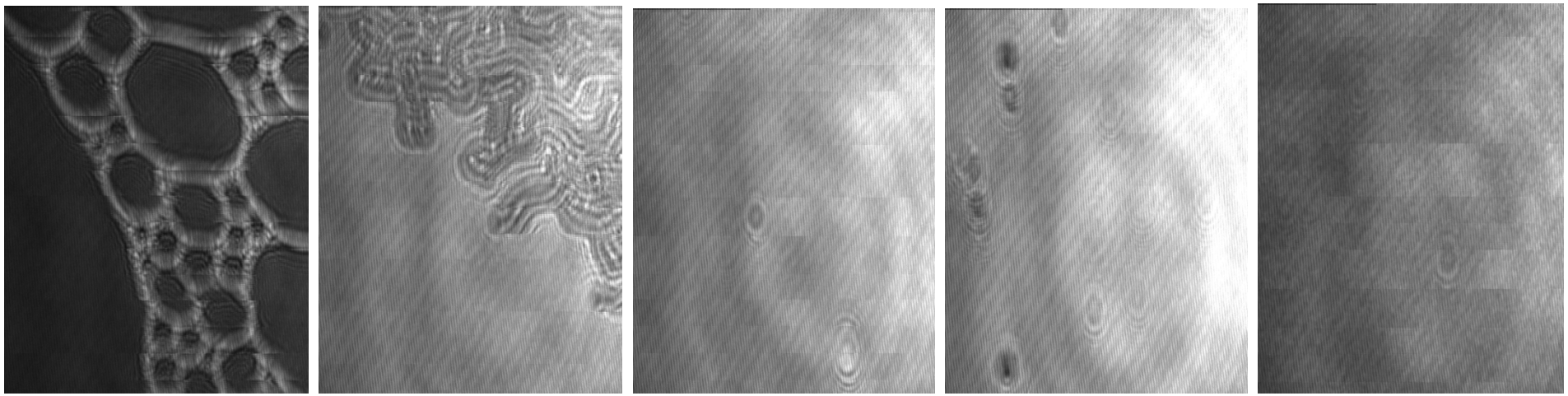
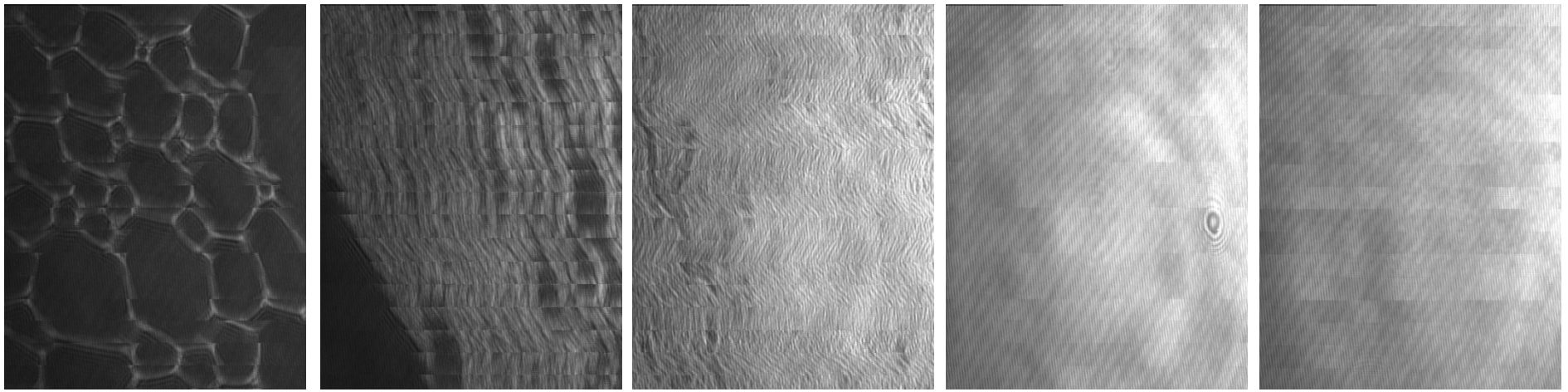


Fig. S2. Brewster angle microscopy images of *cis*-[Ru(**1**)$_2$Cl$_2$] on a water subphase at (a) 0.00 mN/m, (b) 0.10 mN/m) (c) 3.32 mN/m, (d) 13.00 mN/m and (e) 24.00 mN/m.



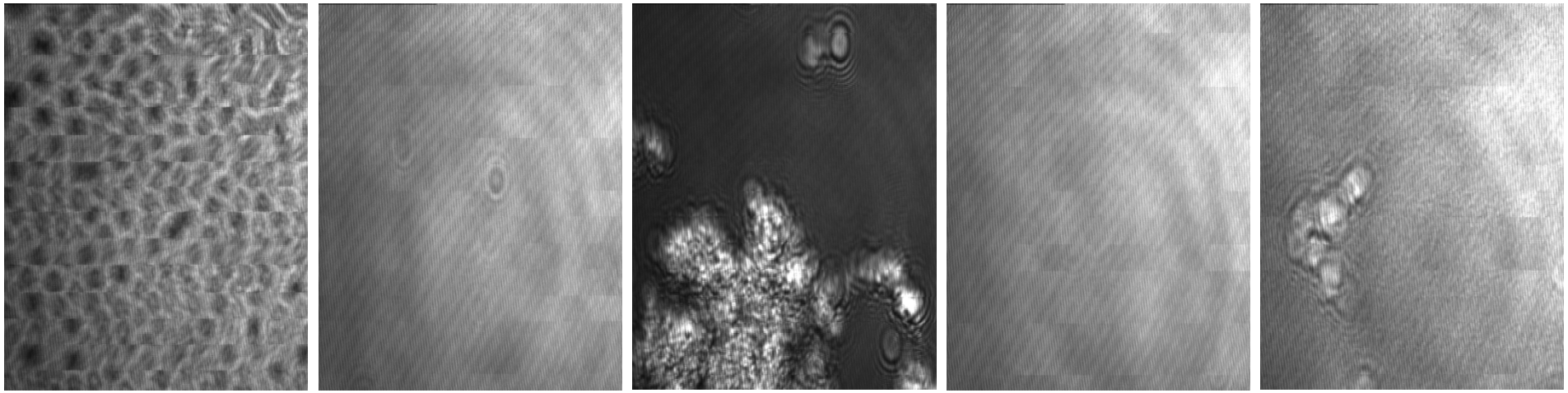
2 (a) **2 (b)** **2 (c)** **2 (d)** **2 (e)**

Fig. S3. Brewster angle microscopy images of [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$ on a water subphase at (a) 0.001 mN/m, (b) 0.06 mN/m) (c) 0.08 mN/m, (d) 1.87 mN/m and (e) 53.69 mN/m.



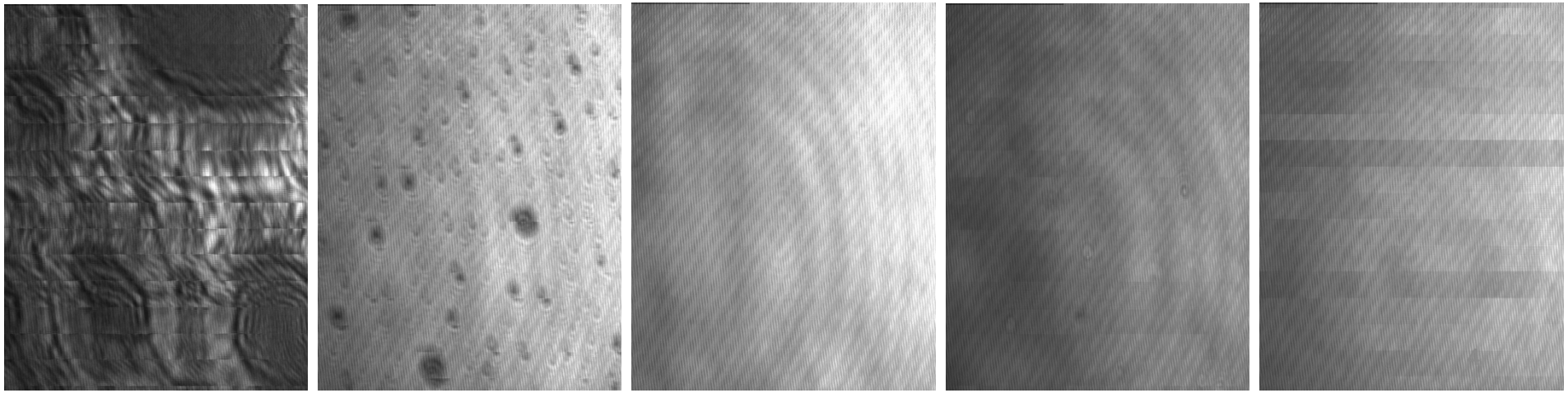
3 (a) **3 (b)** **3 (c)** **3 (d)** **3 (e)**

Fig. S4. Brewster angle microscopy images of *cis*-[Ru(**1**)$_2$Cl$_2$ on an aqueous KCl subphase at (a) 0.00 mN/m, (b) 1.27 mN/m) (c) 5.33 mN/m, (d) 15.23 mN/m and (e) 26.90 mN/m.



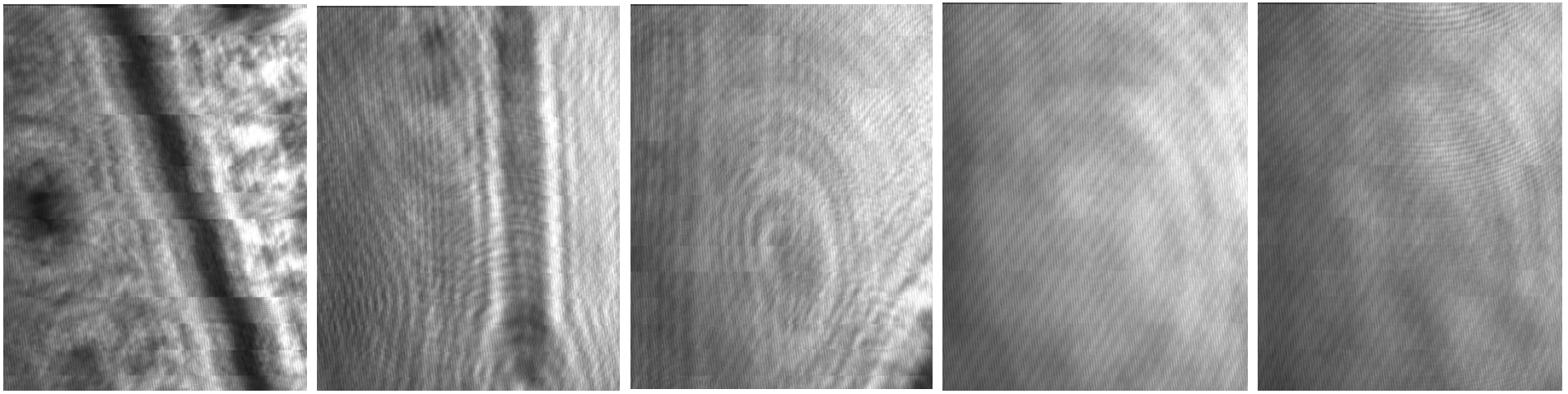
4 (a) **4 (b)** **4 (c)** **4 (d)** **4 (e)**

Fig. S5. Brewster angle microscopy images of [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$ on an aqueous KPF$_6$ subphase at (a) 0.02 mN/m, (b) 1.08 mN/m) (c) 8.20 mN/m, (d) 28.55 mN/m and (e) 51.42 mN/m.



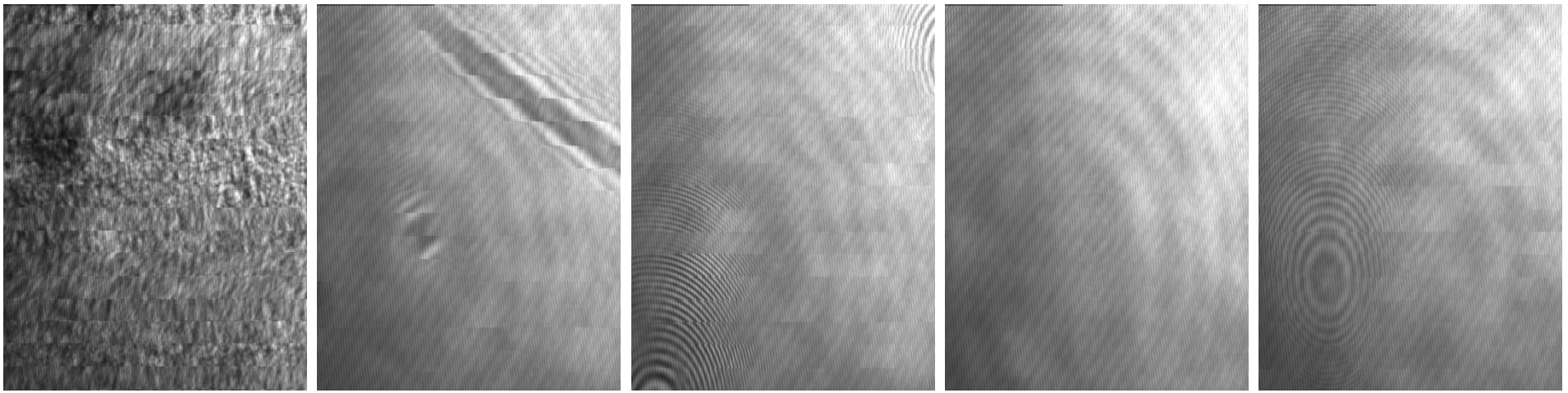
5 (a) **5 (b)** **5 (c)** **5 (d)** **5 (e)**

Fig. S6. Brewster angle microscopy images of cis-[Ru(**1**)$_2$Cl$_2$ on a Co_4POM subphase at (a) 0.00 mN/m, (b) 0.95 mN/m) (c) 3.31 mN/m, (d) 11.04 mN/m and (e) 27.10 mN/m.



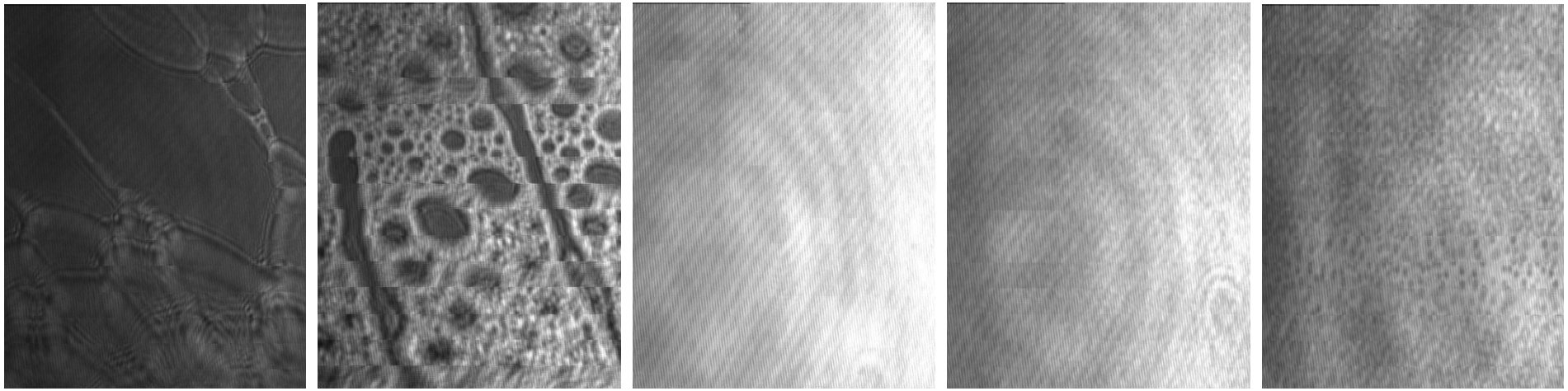
6 (a) **6 (b)** **6 (c)** **6 (d)** **6 (e)**

Fig. S7. Brewster angle microscopy images of [Ru(**1**)$_2$(bpy)][PF_6]$_2$ on a Co_4POM subphase at (a) 0.06 mN/m, (b) 0.17 mN/m) (c) 2.00 mN/m, (d) 15.28 mN/m and (e) 21.34 mN/m.



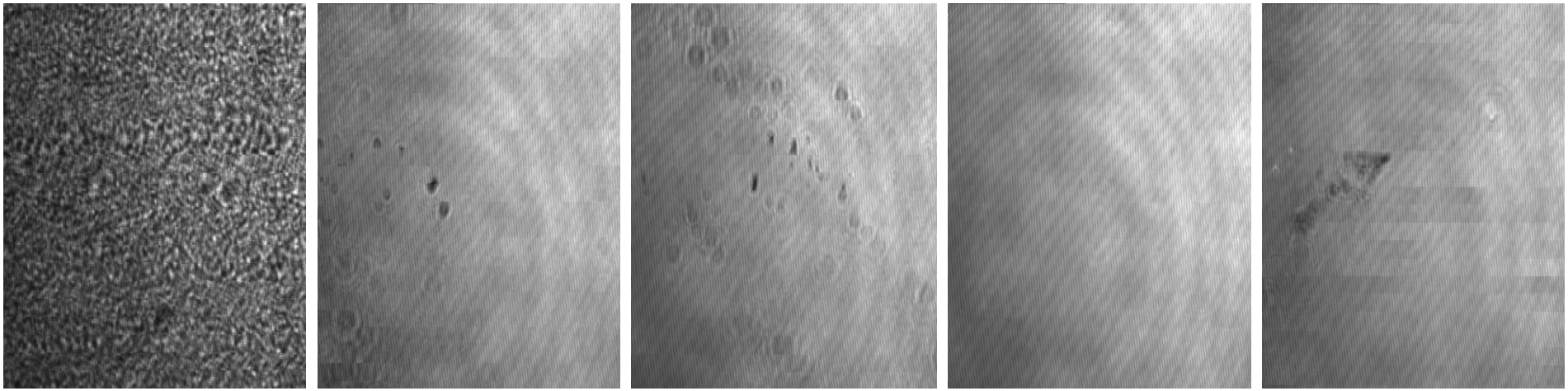
7 (a) **7 (b)** **7 (c)** **7 (d)** **7 (e)**

Fig. S8. Brewster angle microscopy images of Ru(**1**)$_2$(bpy)][PF_6]$_2$:DODA (1:0.5) on a water subphase at (a) 0.06 mN/m, (b) 0.12 mN/m) (c) 1.71 mN/m, (d) 25.27 mN/m and (e) 66.13 mN/m.



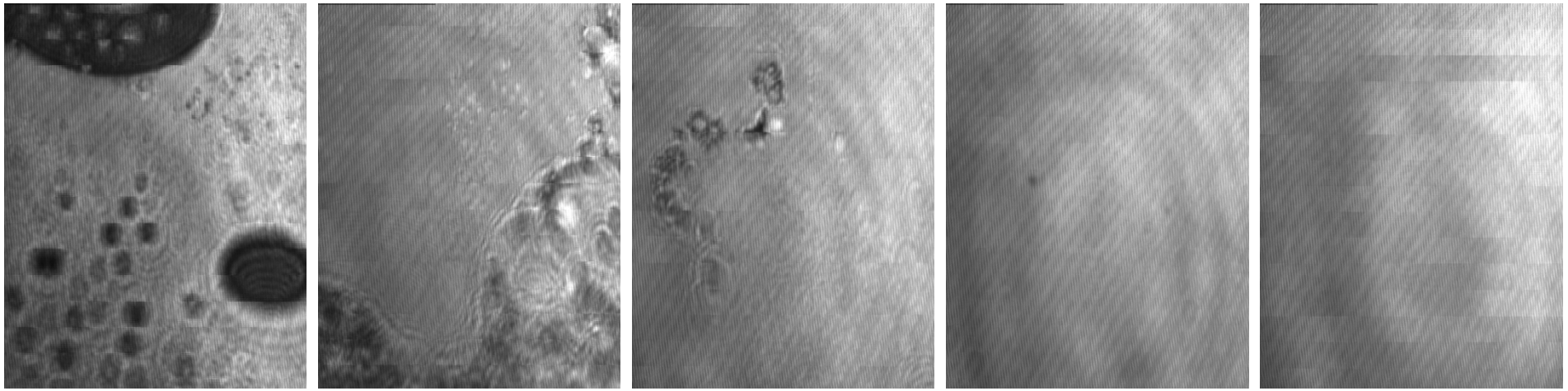
8 (a) **8 (b)** **8 (c)** **8 (d)** **8 (e)**

Fig. S9. Brewster angle microscopy images of [Ru(**1**)$_2$(bpy)][PF_6]$_2$: DODA (1 : 0.5) on a Co_4POM subphase at (a) 0.04 mN/m, (b) 0.15 mN/m) (c) 0.63 mN/m, (d) 2.65 mN/m and (e) 19.12 mN/m.



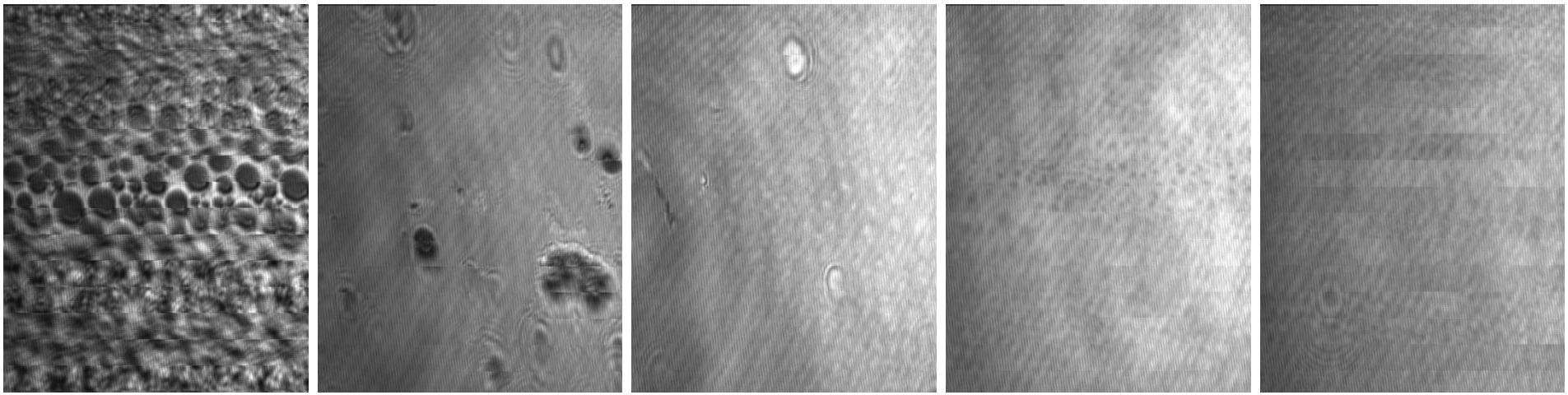
9 (a) **9 (b)** **9 (c)** **9 (d)** **9 (e)**

Fig. S10. Brewster angle microscopy images of Ru(**1**)$_2$(bpy)][PF$_6$]$_2$:DODA (1:5) on a water subphase at (a) 0.11 mN/m, (b) 3.31 mN/m) (c) 7.55 mN/m, (d) 31.54 mN/m and (e) 46.36 mN/m.



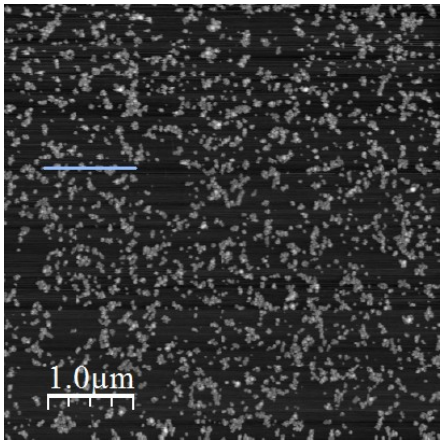
10 (a) **10 (b)** **10 (c)** **10 (d)** **10 (e)**

Fig. S11. Brewster angle microscopy images of [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$: DODA (1:20) on a Co$_4$POM subphase at (a) 0.05 mN/m, (b) 0.27 mN/m) (c) 4.93 mN/m, (d) 52.08 mN/m and (e) 58.64 mN/m.

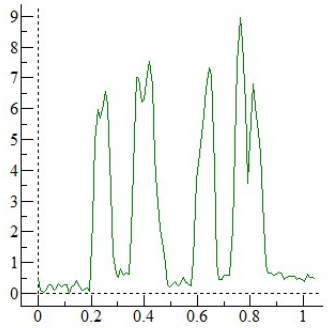


11 (a) **11 (b)** **11 (c)** **11 (d)** **11 (e)**

Fig. S12. AFM height images of *cis*-[Ru(**1**)$_2$Cl$_2$] LB film on mica, transferred from a monolayer formed on a Co_4POM subphase from (a) one dipping cycle, (b) line profile corresponding to the blue line drawn in (a), (c) three dipping cycles (d) Line profile corresponding to the blue line drawn in (c), and (e) five dipping cycles (f) Line profile corresponding to the blue line drawn in (e)



12 (a)



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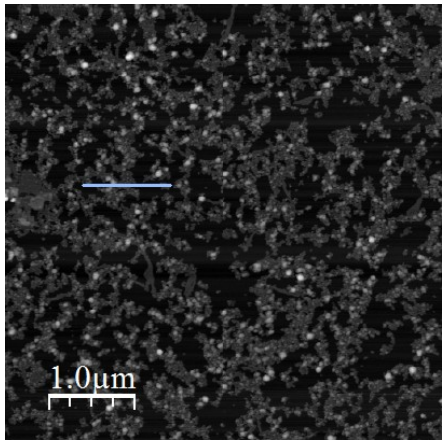
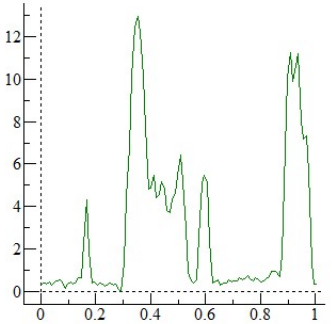


12 (c)



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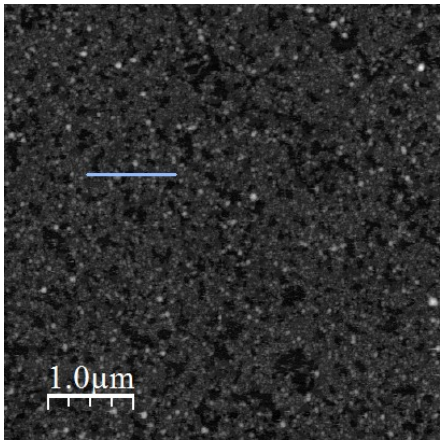

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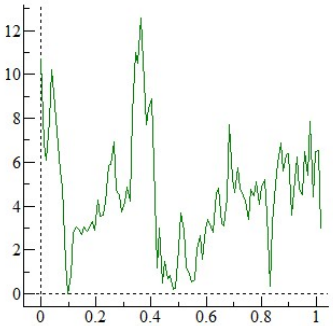
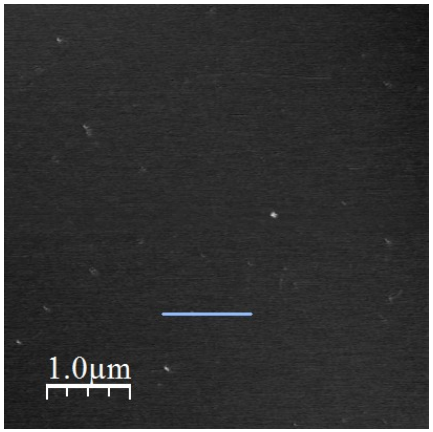
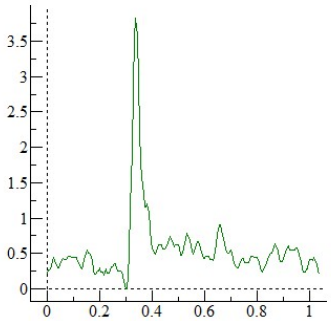


12(f)

Fig. S13. AFM height images of [Ru(**1**)$_2$(bpy)][PF_6]$_2$ LB film on mica, transferred from a monolayer formed on (a) a water subphase from one dipping cycle, (b) line profile corresponding to the blue line drawn in (a)

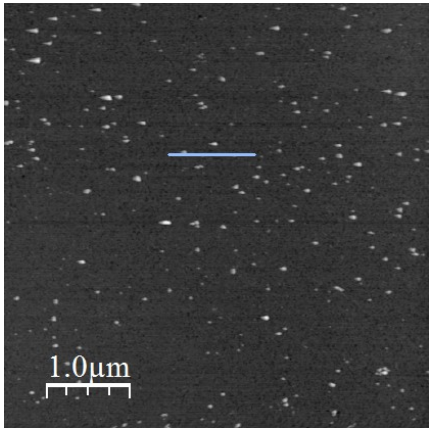


13 (a)

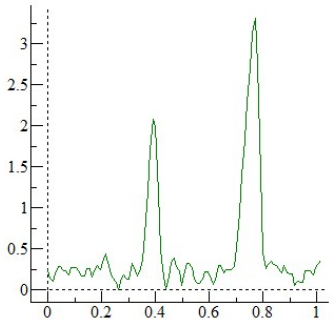


13 (b)

Fig S14. AFM height images of [Ru(**1**)$_2$(bpy)][PF_6]$_2$ LB film on mica, transferred from a monolayer formed on a Co_4POM subphase from (a) five dipping cycles, with (b) Line profile corresponding to the blue line drawn in (a).

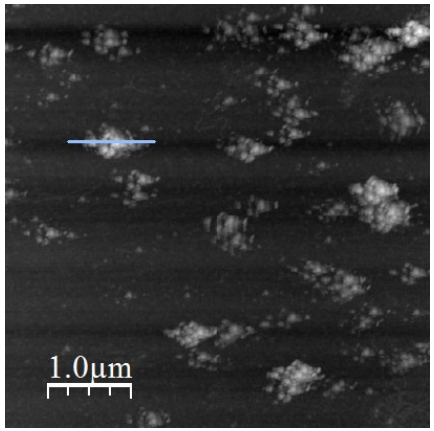


14 (a)

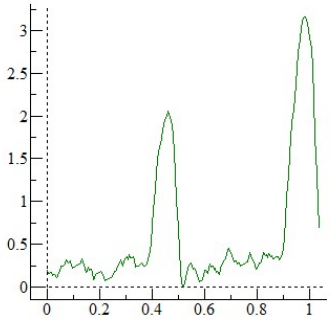


14 (b)

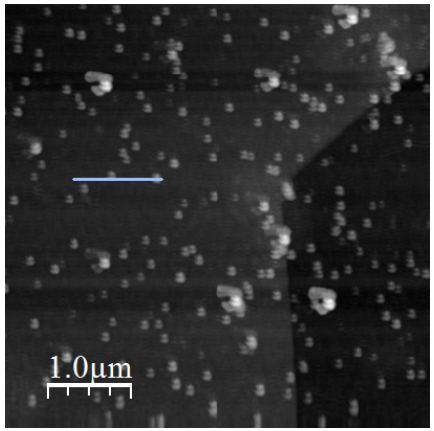
Fig S15. AFM height images of [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$/DODA LB films (five dipping cycles) on mica transferred from monolayers formed on a Co_4POM subphase: (a) 1 : 5 [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$: DODA mole fraction, (b) Line profile corresponding to the blue line drawn in (a), (c) 1 : 20 [Ru(**1**)$_2$(bpy)][PF$_6$]$_2$: DODA mole fraction, (d) Line profile corresponding to the blue line drawn in (c).



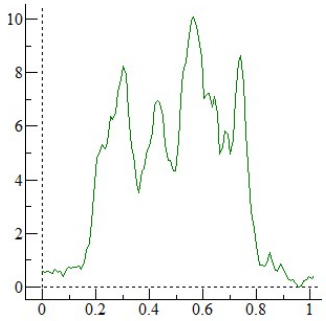
15 (a)



15 (b)



15 (c)



15 (d)