**Supplementary Information**

Poly(vinyl alcohol)-assisted synthesis of 3D Bi2S3 submicrometric structures toward feasible chip photodetector applications

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**Fig. S1.** The transient photocurrent responses of Bi2S3 nanosheets (BS-PVAhigh sample) to switching ON and OFF green light illumination (*λ*=517 nm) measured for different light intensities (a) *IL*=915 µW/cm2, (b) *IL*=619 µW/cm2, (c) *IL*=323 µW/cm2, (d) *IL*=183 µW/cm2, (e) *IL*=86 µW/cm2, (f) *IL*=36 µW/cm2, (g) *IL*=5.9 µW/cm2, (h) *IL*=2.3 µW/cm2, (i) *IL*=0.95 µW/cm2 (*U*=1 V, *T*=20°C, *RH*=30%).

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**Fig. S2.** The transient photocurrent responses of Bi2S3 nanosheets (BS-PVAhigh sample) to switching ON and OFF red light illumination (*λ*=628 nm) measured for different light intensities (a) *IL*=332 µW/cm2, (b) *IL*=202 µW/cm2, (c) *IL*=92 µW/cm2, (d) *IL*=48 µW/cm2, (e) *IL*=20 µW/cm2, (f) *IL*=7.7 µW/cm2, (g) *IL*=0.98 µW/cm2, (h) *IL*=0.34 µW/cm2, (i) *IL*=0.13 µW/cm2 (*U*=1 V, *T*=20°C, *RH*=30%).